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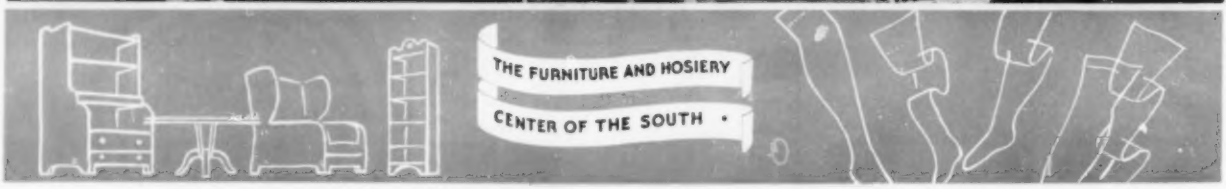
HIGH POINT

NORTH CAROLINA



Located in the beautiful Piedmont Section of North Carolina, abundant in natural resources, HIGH POINT is a hosiery, furniture manufacturing and market center of the South. Besides being an industrial center, it is noted for being a pleasant place in which to live. Its efficiently operated municipal facilities have contributed much towards the city's rapid progress.

HIGH POINT'S abundant supply of pure water is drawn from a natural lake. The daily pumpage averages 3,000,000 gallons. Long an advocate of the metered distribution system, HIGH POINT has for years been a buyer and user of PITTSBURGH WATER METERS.

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Mention THE AMERICAN CITY—it helps.

Twelve Regional Capitals?

Resources Committee Urges Decentralizd Planning

FROM some of the newspaper comments and political oratory which greeted the release last month of the National Resources Committee's report on "Regional Factors in National Development and Planning," one might suppose that we were threatened with the carving-up of the United States into twelve or some other number of autonomous principalities. The Committee's report, however, specifically pointed out that "not Balkanization of America" was contemplated, but cooperative use of state and Federal powers on a sub-national basis to attack planning problems involving more than one state.

This report on Regional Factors follows the recently issued document on State Planning* and shows the inadequacy of state powers to meet pressing problems of water use and control, land use, erosion, and mineral policies overlapping state lines. In the opinion of the National Resources Committee these regional planning problems should be handled on a decentralized basis.

* See page 107 of this issue and pages 61-62 of the December number.

The principal recommendations of the Committee include:

(1) Continued support by the Federal Government of state planning;

(2) The establishment as needed of regional planning commissions like those in New England and the Pacific Northwest;

(3) The encouragement of further use of interstate compacts as a means of solving regional problems wherever this is feasible;

(4) Consideration of the advantages of Federal authorities of a regional-functional nature, such as the Tennessee Valley Authority, as a means of dealing with some types of sub-national problems;

(5) The adoption of a general policy that comprehensive planning should precede development programs;

(6) The establishment of a permanent advisory National Planning Board responsible directly to the President and charged with the duty of preparing plans and general policies, stimulating and encouraging regional and state planning, and advising the President on progress and development of planned proposals;

(7) The establishment of a permanent National Development Administration based upon the powers, duties, and functions of the Emergency Administration of Public Works, the Works Progress Administration, the Allotment Committee, and the Federal Employment Stabilization office;

(8) The use of a variety of methods for construction and development of regional projects as adequate planning may suggest or the Development Administration may find appropriate or expedient;

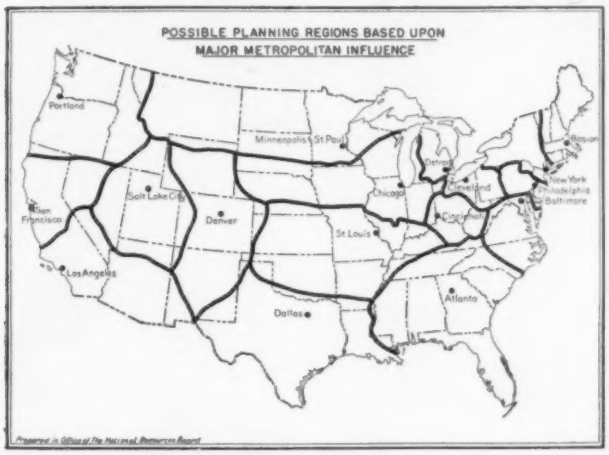
(9) Pointing Federal policy so as to bring down the 108 different sets of field districts in use by Federal agencies to a limited number of regional centers, say 10 to 12.

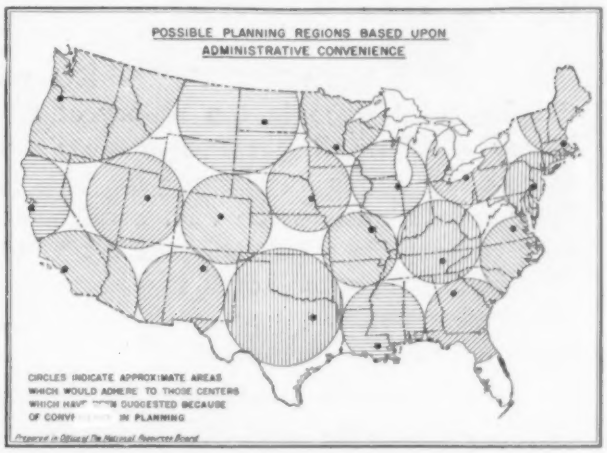
No Hard-and-Fast Boundaries

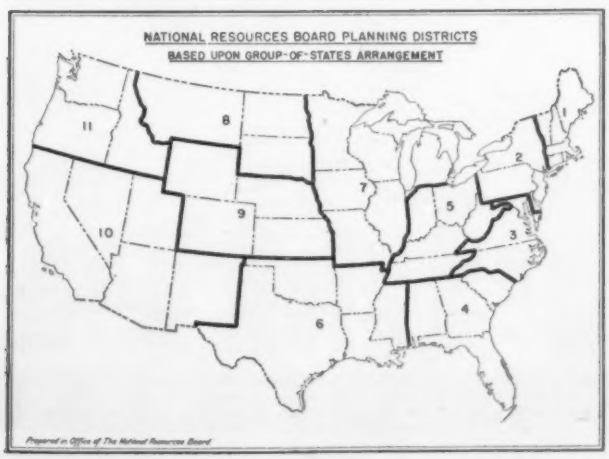
Regions for planning in the United States can have no hard-and-fast boundaries, according to a report of a technical sub-committee on regional planning. This committee presents a series of maps showing different types of regions, four of which are here reproduced.

In discussing the selection of centers, or what the newspapers have called "capitals" of the regions, the report says in part:

"Out of all the considerations entering into the problems of organizing for regional planning, certain criteria emerge as most important in the selection of the points at which regional planning offices may be established. The actual selection will probably result from a combination of fortuitous circumstances and rational application of the criteria. When the state and Federal and unofficial groups in a certain section of the country decide that the time is ripe to begin regional planning, assistance can be given in determining the generalized region with which the planning may be identified, the states to be represented, the functions and functional areas to be treated in the coordinate planning, and the selection of the location for the headquarters, based upon the preceding factors, upon accessibility and convenience, and upon the acceptability of the center for collaborative planning. If the regional planning be initiated in Washington, the same criteria may be applied."




POSSIBLE PLANNING REGIONS BASED UPON
ADMINISTRATIVE CONVENIENCE
CIRCLES INDICATE APPROXIMATE AREAS
WHICH WOULD ADHERE TO THOSE CENTERS
WHICH HAVE BEEN SUGGESTED BECAUSE
OF CONVENIENCE IN PLANNING
Prepared in Office of The National Resources Board



Time's infallible hand turns the fifty-third page in the history of the House of Layne. Bright and glowing are those other pages that have gone before. They record enterprise . . . effort . . . achievement. So much so, that the wide world over, the name Layne has become a standard by which pumps, wells, and well water systems are measured.

Of the pages that are complete, Layne is proud. And the House of Layne looks on this fresh, new page as one to be made the brightest of them all.

LAYNE & BOWLER, Inc.
Department B Memphis, Tenn.

LAYNE PUMPS
AND WELL WATER SYSTEMS

Do you mention THE AMERICAN CITY? Please do.

Water Supply and Purification

Future of Water Supply in New Jersey

THE New Jersey State Planning Board has concluded that the state must look sharply to its future water supply following a survey of the waters of the state. New Jersey, the statement says, is weak in sanitation, many streams important to future water supply and already needed for purposes of recreation being badly polluted by sewage and industrial waste. The shellfish industry is described as seriously injured by pollution. This condition can be very largely corrected by the formation of joint sanitary districts by properly related communities.

After pointing out that two opposing factors complicate and simplify the potable water-supply problem, the extreme pollution hazard of a concentrated population and the presence of great, sparsely populated water-source areas in the inferior-soil districts of north and south Jersey, the report says:

"No streams of the state have entirely escaped pollution. In relatively few instances, however, are the stream-waters of the state beyond reclamation for domestic uses by modern methods of water purification. In only a few cases, and then only slightly, do areas of severe pollution encroach upon watershed areas of present or prospective public utility.

"While present stream pollution undoubtedly increases the hazard of contamination and adds to the cost of purification of the public water supply, by far the greater hazard and the greater injury is to recreational uses and to fish life. A considerable mileage of the state's streams is so polluted by industrial and domestic waste that all thought of their recreational use has long since been abandoned. Many more miles of streams, while used more or less extensively for various forms of recreation, are nevertheless quite unpleasant for most such use and quite dangerous for bathing.

"Unfortunately, much of the more extreme pollution occurs within or in the near proximity of the more densely populated areas, where recreational areas are most needed. Until this condition can be corrected by better handling of both domestic and industrial waste, these waterways will be lost as natural assets, and will continue as dangerous and costly liabilities.

"The utilized surface-water sources lie principally in the northern half of the state, and most municipalities of the north-section use surface water, while south Jersey cities rely principally upon underground sources. Several south Jersey towns have developed satisfactory surface sources and there are in this district areas of large, potential surface supply. In several instances, however, water is so discolored as to present difficult and costly problems in clarification."

Safe Handling of Chlorine and Ammonia

THE safe handling of chemicals used in the purification of water is important at all plants. Among those most dangerous to the operators are chlorine and ammonia. The following suggestions apply with equal force to ammonia and chlorine as well as to other gaseous chemicals in general use.

Don't expose yourself to the gases unless necessary—they may prove fatal.

Avoid bumping or dropping the containers.

Keep containers away from steam lines or fire.

Keep caps on containers except when in use.

Always keep container valve closed except when using.

Never fail to call for help in an emergency.

Stop leaks as soon as discovered; they always become more dangerous. Small leaks may be located by suitable indicators.

If possible, obtain suitable, approved gas mask before exposing yourself; moist rags over face are of some little help for a short time.

If liquid is leaking, try to roll or manipulate the container until only gas is escaping.

Pack the container with ice to cool as much as possible to reduce pressure in container.

Remember, ammonia-gas is lighter than air; hence, rises—chlorine-gas settles to the floor, being heavier than air.

MARSDEN C. SMITH,

Engineer, Department of Water and Electricity, Richmond, Va.; and Chairman, Chemical Hazards Committee, A.W.W.A.

The Past and Future of the Columbus, Ohio Water Supply

WHEN, in 1934, Ohio was blanketed with drought and for 298 days no water was passed over the crest of O'Shaughnessy Dam, the citizenry of Columbus was alarmed for the first time since the construction of that reservoir, for had the drought continued, Columbus might have been destitute for water within 60 days.

Columbus has had a rapid growth since its first effort, in 1870, to supply the community with a central water-supply system. The new system was installed in 1908, and has been added to and improved from time to time since then.

The daily requirement at the present time is 31,000,000 gallons of water. This is taken from the Scioto River, supplied by two storage dams—Griggs, with a storage capacity of 1,400,000,000 gallons, and O'Shaughnessy, with 5,341,000,000 gallons. An additional 17,000,000 gallons of water is consumed daily by Columbus business, this water being pumped from private wells. It is important to note that this private water supply is pumped from a depth that is 30 feet lower today than it was ten years ago. Meeting the new requirements of air conditioning may prove difficult, according to a committee of the Columbus Chamber of Commerce, unless new sources of water are found. An example of the requirement of water for air conditioning is noted in the need for 800,000 gallons of water daily for air conditioning the F. & R. Lazarus & Co. store, whereas the consumption of water for all other purposes by this store is only 200,000 gallons a day.

Plans of the present Scioto-Sandusky Conservancy District call for a reservoir on the Scioto River near Bellepoint at the head of the O'Shaughnessy pool, with a storage capacity of about 16 billion gallons, or three times the capacity of the O'Shaughnessy reservoir, and a reservoir on the Sandusky River with a capacity of 100 billion gallons, or twenty times the capacity of O'Shaughnessy. Obviously, if the Scioto-Sandusky Conservancy District can build a reservoir on the Scioto River near Bellepoint which will impound 16 billion gallons (about 2½ times the present storage in the city supply system), the city can also provide the additional storage needed at the same location.

A diversion channel will be cut between these two reservoirs which will allow 64 billion gallons of water to be diverted from the Scioto River to the Sandusky, according to this project, thus protecting Columbus from future floods. These two reservoirs and the diversion cut would form a lake 40 miles long with a storage capacity of 120 billion gallons of water. This volume will allow a constant flow in the Scioto and Sandusky Rivers and prevent unsanitary conditions at all times of the year, while supplying water for cities of several million population.

Laying 20,000 Feet of 8-Inch Pipe

THE Water Works Department of Sewickley, Pa., recently completed work involving the laying of 20,000 feet of 8-inch pipe line, under the jurisdiction of J. S. Besterman, Superintendent. The average depth of trench was 4½ feet, and the work consisted of tearing up hard-surfaced streets of concrete, brick, slag and asphalt. The entire work of demolishing the streets and tamping the backfill was done with a Barco heavy-duty portable gasoline hammer.

On a number of occasions during the progress of the work the pipe line was laid across a street intersection, and instead of digging up the new pavement, the Barco hammer was used to tunnel underneath the intersection. Through the use of long tools in the hammer, this work was facilitated.

A study of the wider use of elevated steel tank service for municipal water works is one of the features of the Water Supply Section of The Municipal Index for 1936.

BARCO Gasoline HAMMER

Again Demonstrates its Ability on 20,000-ft. Pipe Line Job

This work performed at Sewickley, Pennsylvania, under the direction of J. S. Besterman, Superintendent, Sewickley Water Commission, comprised the digging and tamping of 20,000 feet of pipe line trench to a depth of 4½ feet through concrete, brick, slag and asphalt streets with rock, slate and other hard under surface.

A Barco was the only demolition and tamping tool on the entire job. It was placed in service during January, 1935, and proved to be just as effective in winter as in summer. Total operating costs did not exceed 20c per hour.

Mr. Besterman says: "On our work the Barco has paid for itself many times over. It was ready at all times to do the toughest kind of work, and is still in A-1 condition and ready for the next job."

Investigate Barco Portable Gasoline Hammers for your work.

Model H-5 for heavy duty; J-1 for light work.

Concrete and rock breaking—drilling—tamping—frost digging—sheeting driving and many other uses.

Other Barco Hammer facts on request.

BARCO MANUFACTURING COMPANY

1803 Winnemac Avenue, Chicago, Illinois

BARCO

PORTABLE GASoline HAMMER

Street Maintenance

Salem, Ore.

THE streets of Salem are generally in good condition. We make a special effort not to allow defects to remain in the pavement for any length of time. All maintenance is done by the regular street department crew, but some relief labor is used in conjunction with the county for drainage work. No plans as yet have been made for maintenance activities for 1936.

H. M. ROGERS,
City Engineer.

Fulton, Mo.

THE streets of our city are in fair condition only. Most of them are badly in need of resurfacing. During the last few years maintenance has consisted of asphalt patching and street oiling, with a minimum of new surfacing. This work is all performed with our regular forces, except the resurfacing, which is done by contract. No relief labor has been used on the streets except in one minor instance. We have not used relief labor because the labor is too small a part of the total cost.

The city has recently purchased a new distributor and expects to do its own resurfacing in 1936. We intend to apply light seal coats to the oiled gravel streets, and later to build them up with a true wearing surface.

J. W. COOK, JR.,
City Engineer.

La Crosse, Wis.

THE regular maintenance crew of the city has maintained the streets in generally good condition. Our concrete pavements are new, and we seal cracks only in the fall. The asphalt streets are in fair shape, and we patch holes with hot-mix, using the regular crews. The brick streets are irregular, and we have turned and re-laid 1 mile, using relief labor. We are now turning and re-laying another mile with WPA labor. Our maintenance crew patches all street openings. Oiled streets are patched with oil, cinders and sand mixed by hand and carefully tamped into the chuck-holes.

Until last year only our regular forces were engaged in maintenance. Since then about 100 relief laborers have been used on street maintenance.

It is our plan in 1936 to re-lay about 2 miles of brick streets, turning the brick. About 2 miles of street-railway tracks will be taken out, and another 2 miles of streets will be widened from 36 to 42 feet, all with relief labor under WPA.

JOHN H. BARTH,
City Engineer.

Little Rock, Ark.

OUR streets are in fair shape, both paved and unpaved. We have been able to keep them so by increasing the duties of each man on our maintenance crews. I find the most effective way to handle maintenance on a small budget is frequent inspection to detect the first sign of a breakdown, thereby reducing the cost of repair. Both our regular forces and relief labor have been used on maintenance in the last year, about 50-50.

For 1936 our intensified maintenance program will be continued, with an enlarged regular force and the use of relief labor as long as available.

J. E. MCCOOK, JR.,
City Engineer.

Moline, Ill.

OUR streets are in fair condition, and should be in better condition, but they are not, for several reasons. A large percentage of our money was first pledged to CWA projects for picks, shovels, etc., as we had 1,000 laborers working at one time. Similarly, our funds have been pledged for FERA work. Transit shelter men were used on work that FERA would not approve, such as cleaning streets, removing snow, etc.

Now that there are no men available for WPA or transit labor, it is impossible to buy material and pay for all help, since taxes are not being collected 100 per cent and the city has abolished the wheel tax on automobiles.

R. C. BENELL,
City Engineer.

Watertown, N. Y.

OUR streets, generally, are in good condition, maintained so by persistence and the use of asphalt or tar mixtures with crushed stone such as Amiesite and Tarvialithic. We use our own forces, with no relief labor. The prospects for 1936 are a continuation of general repairs, maintenance and some construction of bituminous macadam roads.

FRED E. O'BRIEN,
City Engineer.

Bristol, Conn.

WE are rebuilding all our streets. FERA and WPA projects cover most of the work, and we have about 15 miles completed. The standard for rural roads is 12 inches of gravel with oiled surface, and the standard for roads used for light urban traffic is a 12-inch gravel base with a 2-inch crushed stone penetration top. Wet places are underdrained and given an extra base of 12 inches of cobble Telford. We grade all the roads to a permanent grade before putting on the new surface.

In general our streets are in good condition. Approximately $150,000 has been expended for relief labor in this work, which will be continued in 1936 under the same division of work between regular forces and relief labor.

CARLETON W. BUELL,
City Engineer.

A STREAMLINED FWD MAINTAINER USED BY THE CLINTONVILLE, WIS., STREET DEPARTMENT
The former equipment, shown at the right of the picture, is now kept in reserve for auxiliary and emergency use

MARION

STEEL BODIES *for every purpose*

●

Above—2½ YD. SPECIAL DUMP BODY

10′ 8″ x 78″ x 12″ sides. 18″ head and tailgate equipped with No. 47 Hoist for City of St. Louis

Marion hydraulic dump and special bodies are constructed to meet the most exacting requirements. Correct engineering principles, plus quality, enable the user to handle that over-load easily.

You will be safe if you purchase a Marion.

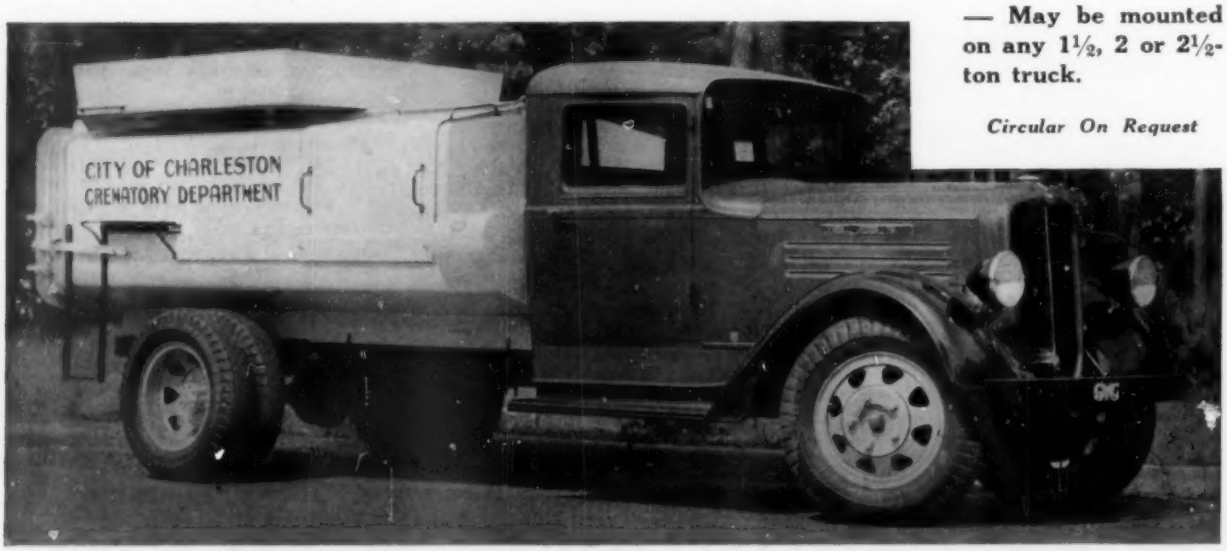
Below—

MARION REFUSE COMPRESSOR

(with trash rack on top for bulky packages, etc.)

— May be mounted on any 1½, 2 or 2½-ton truck.

Circular On Request



The

MARION METAL PRODUCTS CO.

MARION, OHIO

Street Cleaning and Snow Removal

Tucson, Ariz.

WE use motor pick-up sweepers, supplemented in the business district by white wings, for cleaning the streets. We have one Austin motor sweeper and one Elgin motor sweeper. The parked-car nuisance is as yet an unsolved problem with us.

The catch-basins as built in Tucson are self-cleaning, draining directly into the storm sewers.

GEORGE W. SEELEY,
Commissioner of Streets.

Lexington, Ky.

THE center and business area is cleaned twice daily by white wing crews. Two gutter broom crews with two trucks have regular weekly routes for the cleaning of streets. Two motor pick-up sweepers have regular daily routes, operating from 11 P. M. to 8 A. M. to avoid parking difficulties.

We use an Auto Eductor mounted on a Mack truck for pumping out the catch-basins and hauling the refuse to the city dump.

J. WHITE GUYN,
City Engineer.

Joplin, Mo.

WE clean the streets of Joplin by a power sweeper and by hand. A motor pick-up sweeper is used on practically all the paved streets.

There is a one-hour parking limit, which makes it possible for the street sweepers and the power machines to work reasonably satisfactorily.

All catch-basins are cleaned by hand labor.

JOHN J. SAUNDERS,
Commissioner of Streets.

Compton, Calif.

OUR streets are cleaned with an Elgin sweeper, and the business section is touched up during the day by men with push-brooms. We have the following motor equipment in addition: one Ford V-8 fire engine, one Ford sedan, one Ford touring car, one American-LaFrance fire truck, two Model T Ford trucks, one Plymouth roadster, one Allis-Chalmers tractor, one Austin roller, one Wehr grader, one Chevrolet roadster, one Model A Ford roadster, and three Model A Ford trucks. This equipment is used throughout the city work.

We have a one-hour parking ordinance in the business section, with 15-minute parking spaces in the center of each block. In addition to this, the city has constructed a free parking lot in the center of the business district, which materially relieves the parking situation as far as street cleaning is concerned.

All catch-basins are cleaned by hand.

ALBERT B. GIDLEY,
City Manager.

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

Kenosha, Wis.

TWO motor pick-up sweepers are used, each being operated by one man ten hours daily. The sweepings are deposited on the streets when the hopper of the sweeper is full, and the material is immediately picked up by a truck crew consisting of a driver and one man and hauled to the dump. One truck and crew take care of the sweepings from both machines, except during the spring clean-up and in the autumn when the leaves are falling. The business section of the city is swept daily and other sections are swept once each week. To supplement the machine sweeping, one hand sweeper operates in the downtown district and one man in the west commercial district to keep the crosswalks clean and to cover such areas as are inaccessible to the sweepers. A 1-ton truck on part time acts as pick-up on the hand-sweeping operations.

The sweepers are operated between the hours of 5 and 7 A. M., when few cars are parked on the street, and on Sunday mornings we sweep in front of the factory and office buildings.

A total of 4,069 catch-basins are cleaned by the Auto Eductor, and 26 are cleaned by hand.

FRANK GRASSER,
Superintendent of Streets.

Valparaiso, Ind.

WE use push-brooms and teams on dump-wagons aided by a horse-drawn sweeper for cleaning the streets. A Chevrolet 2-ton truck also picks up the material piled in the gutters.

There is no trouble with cars parked at night, but if cars are left out they are tagged and fined.

Catch-basins are cleaned with spoon shovels and pails.

C. M. DICKOVER,
City Engineer-Street Commissioner.

Frederick, Md.

A MOTOR pick-up sweeper is used for practically all the work on the streets of Frederick. The motor equipment, in addition to the pick-up sweeper, consists of three 1½-ton Chevrolets, one 2-ton Reo and one 2-ton International truck.

Cars are not allowed to park on any street after 1 A. M. There is a two-hour parking regulation before this. Thus the streets are clear of cars when the street sweeper starts operating.

JOHN T. BEST,
Street Superintendent.

Madison, Wis.

ONE motor pick-up sweeper and a crew of about 25 men do the street cleaning in Madison. These men cover all streets and alleys about once a week. The machine covers the city about once a week also.

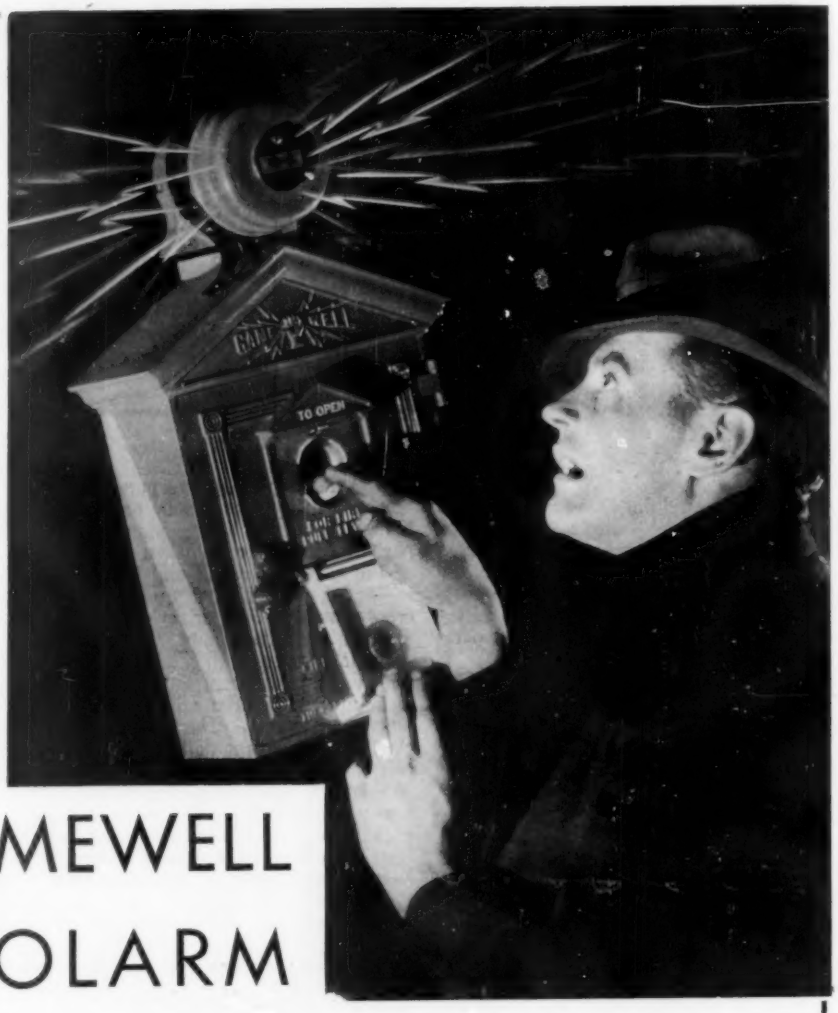
The parked-car nuisance is taken care of by cleaning around the cars as best we can.

We clean the catch-basins by hand twice a year, and the refuse is hauled away by trucks.

R. H. BRUMM,
Street Commissioner.

THE CITY OF LEWISTON, MAINE, USED THIS CATERPILLAR DIESEL AUTO PATROL TO CLEAR THE STREETS OF SNOW AND TO SCARIFY ACCUMULATED ICE TO FACILITATE ITS REMOVAL

Reduce FALSE ALARMS with NEW GAMEWELL ARRESTOLARM



FALSE ALARMS from fire alarm boxes can be reduced most effectively by having a local warning signal sound simultaneous to the operation of the box. The loud and distinctive warning shriek of the new ARRESTOLARM accomplishes just this — it attracts the attention of police, passers-by and local residents to the box so quickly that the person operating the box cannot escape, at least not without being identified for apprehension later.

The ARRESTOLARM Signal is the most practical device now available for reducing false alarms. It is efficient, low in price, economical to install and costs nothing to maintain. Its mechanical movement requires no expensive connection to electrical power lines. Furthermore, it does not discourage the use of fire alarm boxes for legitimate alarms either by trapping the person sending in the alarm or by complicating the method of operating the box.

The ARRESTOLARM Signal is attractive—both in design and finish. Its intermittent warning signal is emitted from a well protected horn located in the back of the unit. The complete device is weather-proof, with non-corrosive parts used throughout. And, it cannot interfere with the operation of the box mechanism in any way.

Try out the ARRESTOLARM Signal on a few of your boxes which are operated most frequently for false alarms. A trial will convince you of its value. Shall we send you a copy of our descriptive bulletin A3-1?

THE GAMEWELL COMPANY

Newton, Massachusetts

Public Safety

Fire Department Inspects Vehicles at Billings, Mont.

BILLINGS, MONT., with 16,000 citizens and 6,500 cars, has adopted an ordinance (ask the Mayor for a copy) demanding the thrice-yearly inspection of the safety factors of local motor cars. This ordinance was voted by the 12 Aldermen. The measure had the enthusiastic support of C. J. Williams, Mayor, and Val Leckner, Chief of Police. The Chief of the Fire Department, V. H. Steele, was placed in charge of the inspection.

The ordinance asks that all motor-car owners of Billings appear at the safety inspection clinic three times a year. The cost of the first inspection is 35 cents, the second 35 cents, the third 30 cents.

ALSO BILLINGS' NO. 1 FIRE STATION

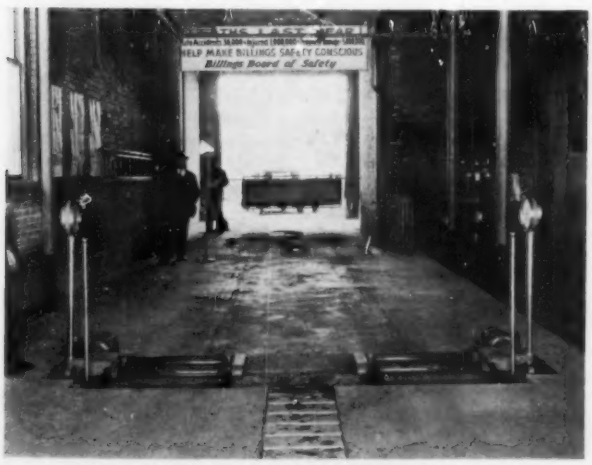
The inspection and testing routine includes braking system, steering system, lighting system, and affiliated parts of these three items; also includes horn, mirror, windshield wiper, stop light and tires. An equalization of 25 per cent on both front and rear wheels is required. The cars that are rejected are not required to pay the fee until the owners have had adjustments made and the cars pass the tests satisfactorily.

The city officials of Billings chose equipment prescribed by the Bendix civic safety clinic, and installed it in the No. 1 fire station of the city. This equipment adequately handles all the various inspections required upon motor cars and trucks, up to 18,000 pounds per axle.

The entire inspection routine is handled by the members of the Fire Department, sixteen in number, who operate the testing bureau on their regular shifts. All these men have been trained by the equipment manufacturer.

Of 2,005 cars inspected during the first 23 days, 1,021 were pronounced O. K.; 747 of those rejected were returned for re-inspection and found to be in satisfactory condition.

An automobile dealer appeared with his entire stock of used cars, all of which were submitted to the inspection and received stickers. The dealer stated that the sticker on the windshield of a used car made an excellent sales point.



READY FOR THE BRAKES

Neon "Stops" in Philadelphia

DURING the last few years, there has been considerable increase in the use of neon gas as a medium for the illumination of commercial advertising signs, because merchants were quick to recognize its "punch," "attraction qualities," and lower operating cost. Some cities are already using neon illuminated STOP signs and have found them effective in reducing accidents.

The accompanying photograph is one of the most recent STOP signs with flashing neon equipment, used in Philadelphia.

The sign face with its cut-out message and border is 18-gage galvannealed metal finished in vitreous porcelain enamel. Directly behind the sign face is a sheet of crystal plate glass sand-blasted on the inner face in order to distribute the light rays evenly.

The neon glass tubing forms the word "STOP" directly behind the letters on the sign face and provides all the illumination. Ribbed chromium reflectors are placed in rear of the tubing at such a distance and angle as to insure the most effective illumination of the secondary message and cut-out border. At night this sign throws out vivid flashes of red light which can be unmistakably seen for a distance of approximately 400 feet. The message and cut-out border of the sign are clearly discernible at about 200 feet.

Life of the equipment runs to 14,000 hours. It has been found feasible to operate neon signs on a very low voltage, using storage batteries. This feature makes it possible to erect neon equipment in rural districts where electric power is not available. Battery manufacturers have developed a low discharging battery which can be operated very economically and several companies are placing this type of signs on the market.

ROBERT A. MITCHELL,
Designing Traffic Draftsman, Bureau of Engineering, Surveys and Zoning, Philadelphia.

TAXPAYERS APPROVE

The Purchase of Austin-Western Motor Sweepers

● It gives them more sanitary, cleaner streets, at a few cents a block. Compared with hand labor this is an important saving—one that can be used for payroll on permanent improvements.

Every city having 10 miles or more of paved streets will find the operation of this modern machine a profitable investment.

Not only is the Austin-Western Motor Sweeper cheaper and faster than hand cleaning methods, but because the chassis is of the standard four-wheel automotive design anyone who can drive a truck is qualified to handle this Motor Sweeper.

Complete visibility in all directions makes driving safe. The hydraulic control of both pickup and gutter brooms give the operator absolute and instant control of the essential working parts, and keeps him fresh for efficiency throughout the day.

Tin cans, broken bottles, etc., are easily picked up by squeegees at the rear elevator and pushed upward into the hopper.

Using squeegees in place of a belt conveyor not only prevents larger objects from rolling back onto the pavement, it catches the dirt thrown up by the rear pickup broom at a point 3½ inches above the pavement. For this reason there is little dirt to be moved at any one time and a clean swept street is insured.

Plan your budget to include an Austin-Western Motor Sweeper. Write for details of construction and terms, or use the coupon.

The Austin-Western Road Machinery Co.

Home Office: Aurora, Ill. Cable Address: AWCO, Aurora

Branches in 14 Principal Cities

Austin-Western

ROAD GRADERS · MOTOR GRADERS · ELEVATING GRADERS · DRAGS
ROAD ROLLERS · DUMP WAGONS · DUMP CARS
SCARIFIERS · BULLDOZERS · TRAILERS · SCRAPERS · PLOWS
BITUMINOUS DISTRIBUTORS · ROAD-MIX MACHINES · CULVERTS
CRUSHING AND WASHING PLANTS · SWEEPERS AND SPRINKLERS · SHOVELS · CRANES · ETC · SNOW PLOWS

The Austin-Western Road Machinery Co.
A-4, Aurora, Illinois
Please send complete information on your Motor Sweepers.

Name..... 603
Address.....
City..... State.....

Sewage Treatment Plants

Suggestions for Landscaping Sewage-Treatment Plants

FIRST in importance in affecting the landscaping about a sewage-treatment plant is the attractive appearance of the structures. Second, is well-graded grounds, which may be level or terraced or a combination of the two, as best suits the several structures, but always providing open expanses of lawns. Third, is a pleasing layout of such roadways as are needed for the vehicular traffic, which should be along the boundary lines and in curves so far as possible, with an adequate parking ground. Footpaths or walks on lines conveniently connecting the several structures, but in locations that will least cut up the lawns though they thereby lengthen the line of travel, are very important.

Native trees should be planted along the property lines and roads following close to those lines, but such planting is not advisable along roads or paths bisecting the front of the grounds. Shrubs are a wonderful addition to the appearance when planted about the administration or main building, and are advisable for surrounding the parking grounds and blank corners. Shrub hedges are almost a necessity, about some 6 to 10 feet back from the outside walls of settling or Imhoff tanks, when the tops of the tanks are at or near the elevation of the surrounding grounds. The hedges serve the twofold purpose of concealing from open view the plain tanks with their seldom pretty contents, and forming a safety barrier to visitors. Earth should be placed around tank structures whose tops extend some height above the surrounding grounds. The banks should have a slope about 1½ to 1 and should be planted with shrubs that within a very few years will completely cover the surfaces. Seeding or sodding such banks with grass is neither successful nor satisfactory, for if heavy rains and frost do not ruin them repeatedly, the work of weeding, cutting and maintaining them in decent appearance is burdensome.

In front of the shrubbery about the administration building and along the side of the main entering footpath or bisecting road, beds of perennial flowers add greatly to the beauty of the site. A screen or background along the sides and back of the grounds and around open sludge beds is desirable. High shrubs, or even perennials if the extent makes the cost of the shrubs prohibitive, will accomplish this mission. The planting conceals unfavorable-appearing surroundings, defines the sites, and also gives a feeling of seclusion which appeals to the sense of privacy and individuality.

—From a paper, "Beautifying the Sewage Treatment Plant," presented by LEWIS E. BURNSIDE, City Engineer, Sharon, Pa., before the ninth annual conference of the Pennsylvania Sewage Works Association.

Laboratory Tests and Equipment for Sewage Works

IF a sewage-treatment plant provides only primary treatment, only tests pertaining to primary treatment need be performed, while a plant with secondary treatment, that is, some form of oxidation, should have testing equipment to regulate these additional units. Sludge digestion, whether it be in an Imhoff tank or a separate digester, can be kept at its highest efficiency only when one knows the condition of the digesting sludge.

If an operator will equip his plant laboratory with the necessary items, he may easily perform the tests that will help him maintain proper results. Even the smallest treatment plant should be equipped for rough tests of efficiency by the Imhoff cone and a pH set. The cone offers a very simple and reliable test of settleable solids in sewage. No other test is more easily performed, since no equipment, reagents or standards other than the cone itself are necessary for it. This determination made on sewage entering and leaving a settling tank or the settling compartment of an Imhoff tank gives in a comparatively short time a good picture of what the settling process is accomplishing. It gives, roughly, the amount of settleable solids in the sewage.

The pH test has similar advantages in that it requires very little equipment and time. The most convenient method is by the block comparator, which contains the single reagent necessary in addition to the set of standards.

These two tests should be the absolute minimum for any plant. This minimum should include the relative stability test in a plant providing secondary treatment. As simple as these determinations are, a series of results over a period of time will tell a great deal about the efficiency of a plant. It will tell whether the character of the sewage is changing during long periods, which simple observation could not detect. It will give valuable information to the consulting engineer who is given the problem of enlarging or replacing the plant. It gives the plant operator a means by which he may compare plants some distance apart.

For larger plants, more exact laboratory results are desirable, and their greater cost is warranted by their greater value. For a more complete analysis of sewage solids, total and suspended solids may be determined for a close check on the condition of the sewage. Measurements of nitrite and nitrate nitrogen give valuable information on the effectiveness of aeration, because they measure directly the progress of oxidation taking place in the trickling filter or oxidation unit. The dissolved oxygen measurement, too, indicates the effect of aeration in the plant. It is also an important determination in stream investigations.

If one has the equipment assembled for the dissolved oxygen test, he has the most important and useful measurement of all available—the biochemical oxygen demand. This demand, or B.O.D., is computed from dissolved oxygen measurements made on a diluted sample of sewage at different times. It is a measurement of the oxygen required to stabilize the organic matter, and is usually considered proportional to the amount of organic matter. This gives us, then, an actual yardstick of that which we wish to remove from sewage, and for that reason is one of the most valuable measurements on any sewage or effluent.

—From a paper by RALPH E. FUHRMAN, Engineer in charge of Sewage Treatment, Springfield, Mo., presented before the Kansas Water and Sewage Works Association.

Unslaked Lime Solves Sludge Digester Problem

A BREAK in the heating coils of the sludge digestion tank at Oneonta, N. Y., necessitated emptying the digestion tank, causing a complete loss of the digester gas. A rather sudden lowering of the air temperature made it impossible to get enough digestion started again to furnish gas to re-heat the tank of sludge. Faced with this serious problem, and cold weather on hand, we hooked up tanks of Pyrofax gas to the hot-water boilers and attempted to heat them in that way, but without much success. A homemade boiler was then rigged up, but the temperature rise in the sludge digester was very slow.

Feeling that it was necessary to do something quickly, we decided to try unslaked lime. We purchased 900 pounds and dumped it into the digester through the two gas domes, replacing the domes immediately. Sufficient gas was formed at once to expel the air from the domes. Apparently, the action of the lime released some gas that was in the sludge, which had been pumped back into the digester, for there was a heavy rush of gas for about 30 minutes. The lime was added in the afternoon, and the gas burners lighted under the boiler within a few hours. They burned for a while and then one went out, but the other was kept in service, and the next morning the temperature of the tank had risen from 55 to 57 degrees F. This digester tank is 17½ x 58½ x 20½ feet deep, the depth being measured to the apex of the hopper bottoms, which are not steep.

WILLIAM W. WATKINS,
Superintendent, Bureau of Water and Sewage Disposal, Department of Public Service.

EDITOR'S NOTE.—We are interested in learning of any other cases of the use of unusual equipment or chemicals to re-heat sewage sludge or to rapidly increase its temperature in order to speed the production of sewage gas, as emergency measures.

Read "The Water Disposal of Garbage" in the 1936 Municipal Index.

NO·615
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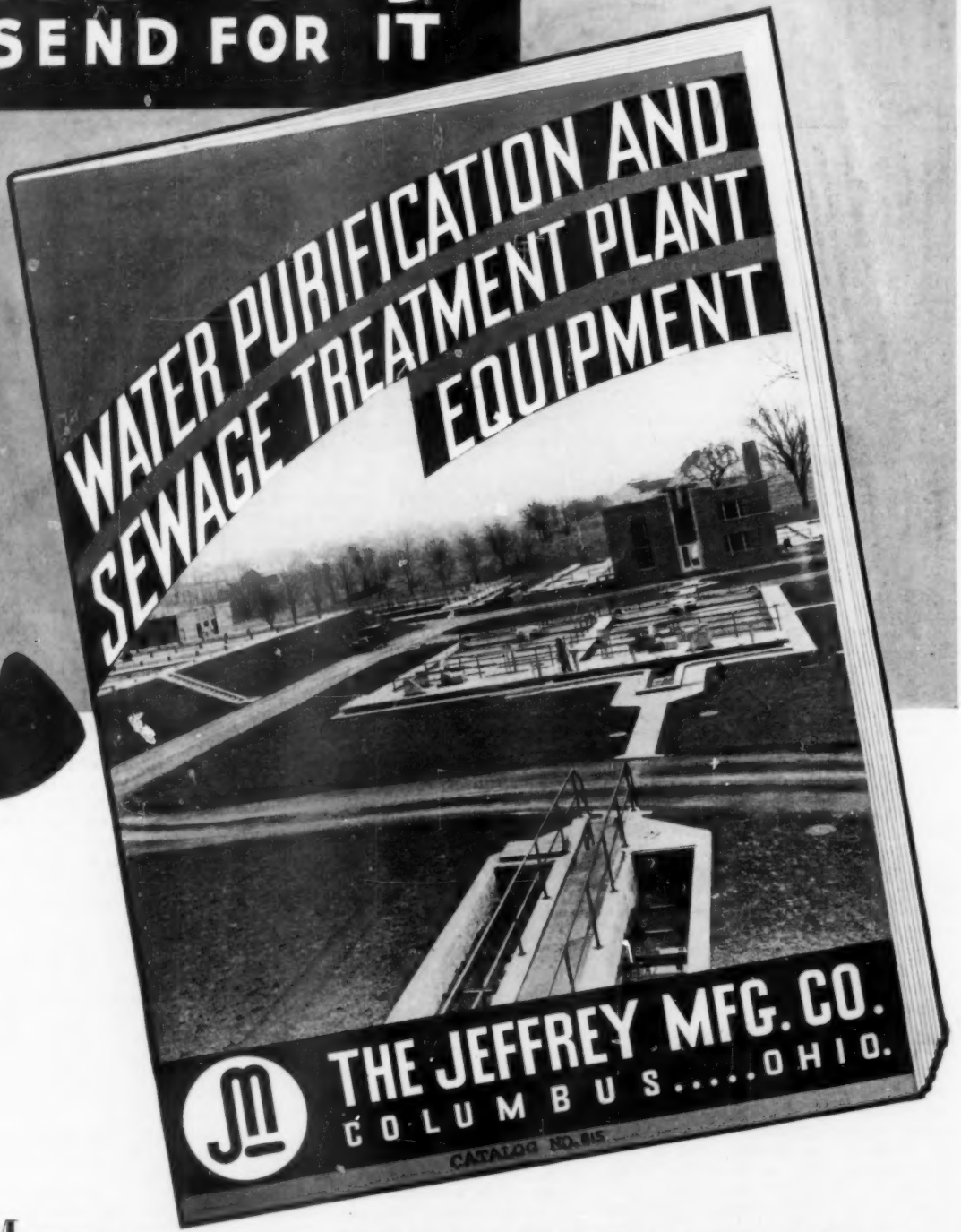

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Water and Sewage Works Equipment

586. Catalog 615-C issued by the Jeffrey Mfg. Co., Columbus, Ohio, contains 31 pages on conveying, screening and reduction machinery for water-purification and sewage-treatment plants. It describes and illustrates the design features of the Jeffrey self-cleaning bar screen, combined screen and grinder, sewage screenings grinder, grit washer, conveyor type and positive discharge sludge collectors, and green garbage grinder. It includes installation views.

Ferric Chloride and Its Use

587. The Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia, Pa., will be pleased to send to any officials interested complete information on ferric chloride, anhydrous and liquid, for use in sewage-treatment plants.

Castings and Fittings of High Quality

588. Lynchburg castings, bell-and-spigot pipe and fittings, cast iron flanged pipe, and de Lavaud centrifugal cast iron pipe are described in literature which may be secured from the Lynchburg Foundry Co., Lynchburg, Va.

Radio Systems to Police Cities

589. RCA Terra-Wave radio systems which use ground waves only, thus preventing interference with other transmitters, and greatly lessening the effects of static, are described in literature which may be secured from the RCA Mfg. Co., Inc., Camden, N. J.

Diesel-Powered Road Rollers

590. The Davenport Besler Corp., Davenport, Iowa, has issued an 8-page Bulletin on its 10- and 12-ton road rollers, powered with Caterpillar diesel engines and equipped with nickel steel standard Caterpillar parts for gears, shafts, steering clutch, and gear shift.

New Swimming Pool Pamphlet

591. A 50-page pamphlet giving complete descriptions and costs of various sizes of swimming pools, comparisons of Ovoid and rectangular pools, and income and expense data for 1931 and 1934 on over twenty pools, may be secured from Wesley Bintz, 116½ N. Washington Ave., Lansing, Mich.

Dirt-Moving Equipment at Work All Over the World

592. A 12-page pictorial bulletin issued by R. G. LeTourneau, Inc., Peoria, Ill., and Stockton, Calif., shows LeTourneau dirt-moving equipment on the job and working in rock, mud, snow and sand the world over. A copy of this Bulletin G-1002 is yours for the asking.

Direct-Connected Sludge Pumps

593. Bulletin 207 issued by the Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass., describes Lawrence standard slurry and sludge pumps, which are direct-connected to electric motors and are especially adapted for pumping liquids containing abrasive solids in suspension.

A 2-Ton Utility Roller for Light Road Work

594. C. H. & E. Mfg. Co., 120 E. Mineral St., Milwaukee, Wis., has recently issued a catalog describing and illustrating in detail the C. H. & E. 2-ton tandem roller, designed for general light rolling work in a great variety of fields.

New Moderate-Size Sludge Pump

595. A new moderate-size, moderate-price, single, vertical sludge pump which, like the larger sizes, operates on the roller ring principle, has been announced by the Novo Engine Co., Lansing, Mich. Specification and price sheet No. 150-B describing this new pump is available.

Venturi Type Meters

596. Simplex Valve & Meter Co., 6743 Upland St., Philadelphia, Pa., will be pleased to send on request a booklet describing Simplex venturi type meters, which are accurate, reliable, and easy to check and adjust.

A Stable and Efficient Chlorine Carrier

597. HTH, made by The Mathieson Alkali Works, Inc., 60 E. 42nd St., New York, is readily soluble and more than twice as concentrated as ordinary chlorinated lime. It is not affected by weather conditions and retains its full strength for months. HTH may be used either alone or in conjunction with liquid chlorine for a wide variety of sanitary jobs. Write for a copy of the 72-page book, "Hypo-Chlorination of Water," which is free to municipal officials.

Cast Iron Pipe for Water

598. Mono-Cast centrifugal B & S pipe, which is adaptable for installing in water-distribution systems, is described in literature which may be secured from the American Cast Iron Pipe Co., Birmingham, Ala.

A New Water-Meter Catalog

599. The A. P. Smith Mfg. Co., East Orange, N. J., will be pleased to send its new blue-and-gold Federal Meter Catalog No. 32 MF to all municipal officials and water-works superintendents interested in efficient accounting for water used.

Diesel Performance for Water Works

600. The proved performance of Winton-diesel engines is worth noting. Complete information on such installations as Maynard, Mass., where 71.5 per cent saving was effected, may be secured from the Winton Engine Corp., Cleveland, Ohio.

A Modern Hydrant with Many New Features

601. The Ludlow modern hydrant, which has no obstruction in the waterway, and all working parts of which are easily removed, which drains from the bottom, eliminates surges and water hammer, breaks above ground in case of accident and can be replaced without digging, is described in literature which may be secured from The Ludlow Valve Mfg. Co., Troy, N. Y.

(*Continued on page* 20)

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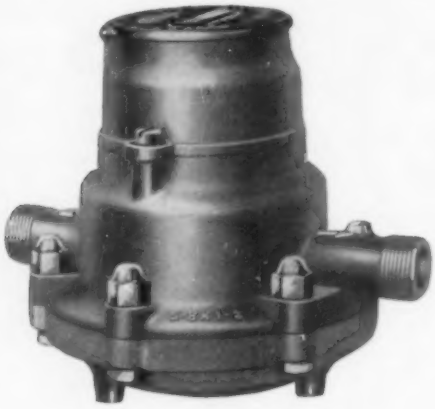

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Simplicity that requires only the absolute minimum of parts and keeps each part simple.

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Standard stock meters containing the construction described above will be supplied on request for inspection or testing purposes. Our catalog also gives full description.

BUFFALO METER COMPANY
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Make a Reference File of Your Catalog File

(Continued from page 19)

Dependable Diesel Engines

602. Fairbanks-Morse diesel engines, motors, pumps and scales, which will give more in low-cost performance than the specifications sheets alone can show, are described in literature that may be secured from Fairbanks, Morse & Co., Dept. D91, 900 S. Wabash Ave., Chicago, Ill.

Bodies for Refuse Collection

603. Wood hydraulic bodies for garbage and rubbish collection, which are watertight, are described in Bulletins 12 and 18 which may be secured from Gar Wood Industries, Inc., 7924 Riopelle St., Detroit, Mich.

Get Rid of Black, Rusty Water

604. The National Water Main Cleaning Co., 50 Church St., New York, will be pleased to send to all interested officials complete information on the National method of cleaning water mains to rid them of black and rusty water and to increase the pressure. Write today.

Catalog on Iron and Chainlink Wire Fence

605. The Stewart Iron Works Co., Inc., 110 Stewart Block, Cincinnati, Ohio, will be pleased to send its new catalog on Stewart fences of iron and chainlink wire for every public property need to all interested.

Correcting Sunken Sidewalk Slab

606. One of the many applications of the Mud-Jack is the raising of sidewalk slab. Mud-Jack Bulletin AC, issued by Koehring Co., Milwaukee, Wis., completely describes the N.E.C. Mud-Jack for raising concrete curb, gutter, walks and street.

Self-Propelling Sewer Cleaner

607. Information on the self-propelling Junior Ferret turbine sewer cleaner, designed especially for the sewer department which finds it necessary to clean curves and bends, may be secured from the Turbine Sewer Machine Co., 52d & W. State St., Milwaukee, Wis.

Snow-Plows Easily Attached and Detached

608. The Gettelman Heil quality-built blade and V-type snow-plows, which are scientifically designed to clear snow away with minimum pushing effort, are operated by hand hydraulic cab control and are easily attached and detached are described in the catalog of Heil products issued by The Heil Co., 3000 W. Montana St., Milwaukee, Wis. Copies of this catalog may be secured by writing the manufacturer.

A Weed-Killer That Is Effective

609. Now is the time to kill crab grass, a hardy pest which invades lawns, green and cultivated areas. Dolge weed-killer does this in an easy and effective manner. Write for details to The C. B. Dolge Co., Westport, Conn.

A New High-Speed Sewage Pump

610. A non-clogging pump for handling sewage at high speeds and against high heads and permitting the use of standard high-speed motors is described in literature which may be secured from the Morris Machine Works, Baldwinsville, N. Y.

Asphalt That Lowers Costs

611. Texaco asphalt paving, which requires little upkeep and lowers city costs of maintenance, is described in literature which may be secured from The Texas Co., Asphalt Sales Dept., 135 E. 42nd St., New York.

Tires That Grip Soft Ground

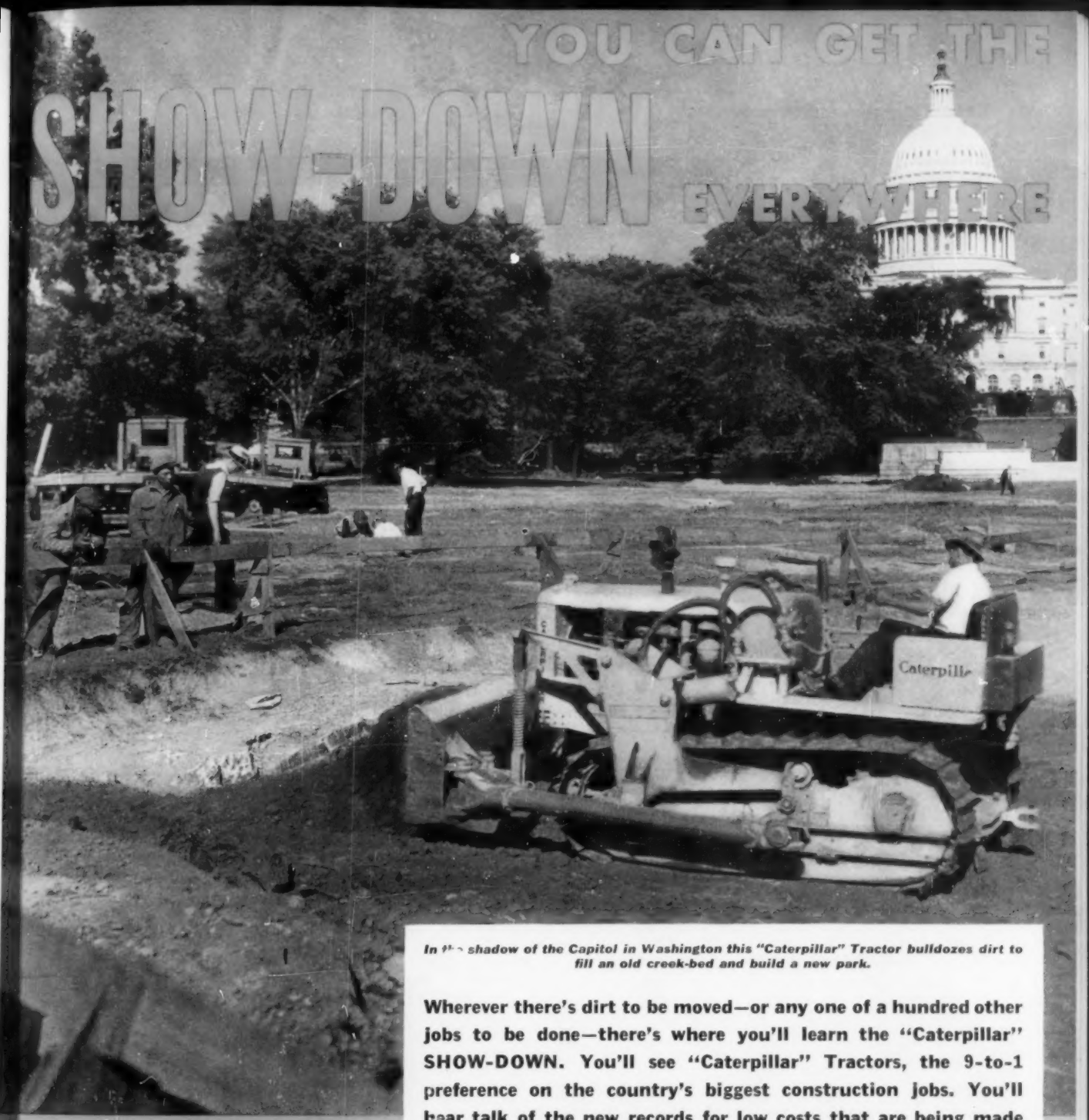
612. Firestone ground grip tires, which give super-traction to pull through soft ground, loose earth, mud, sand or snow, are described in literature that may be secured from the Firestone Tire & Rubber Co., Akron, Ohio.

New Rotary Distributor Bulletin

613. A new bulletin on P.F.T. rotary distributors has been recently issued by the Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago, Ill. This bulletin fully describes and illustrates P.F.T. rotary distributors for sprinkling filter plants. It also contains a condensed catalog illustrating other sewage equipment supplied by this company. A copy of this new Bulletin 113 will be sent free to those requesting it.

New Leaflet on Pumps

614. A new leaflet, AE-1166, issued by DeLaval Steam Turbine Co., Trenton, N. J., illustrates and describes DeLaval centrifugal pumps of various sizes, which are efficient and give many years of service. A copy of this leaflet is yours for the asking.



In the shadow of the Capitol in Washington this "Caterpillar" Tractor bulldozes dirt to fill an old creek-bed and build a new park.

Wherever there's dirt to be moved—or any one of a hundred other jobs to be done—there's where you'll learn the "Caterpillar" SHOW-DOWN. You'll see "Caterpillar" Tractors, the 9-to-1 preference on the country's biggest construction jobs. You'll hear talk of the new records for low costs that are being made by "Caterpillar" Diesels. And you'll get the rest of the SHOW-DOWN—the proof of low maintenance costs—from owners who have run their "Caterpillar" Diesels 6000, 8000 hours and more. See your dealer for details of this modern power. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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Metal Accessories for Highway Construction

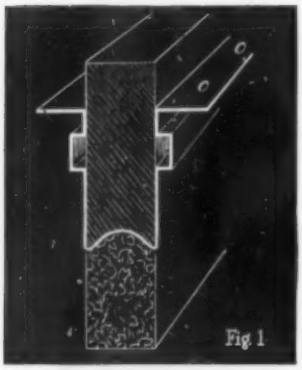
Fig. 1

FIG. 1

illustrates the metal housing for the fibrated asphaltic joint showing control of oozing of upper structure. The base is prepared from a non-oozing material.

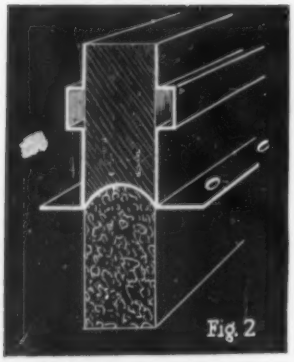
Fig. 2

FIG. 2

illustrates a fibrated asphalt top showing metal escape containers with a fibrated asphaltic top and a sponge-rubber, cork-rubber or fibre board base. The structure has an intermediate seal.

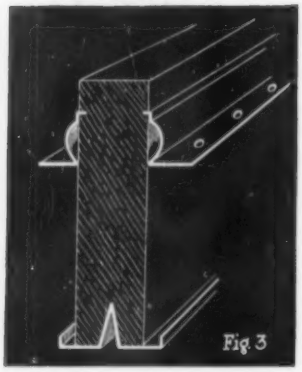
Fig. 3

FIG. 3

illustrates a combination seal imbedded in fibrated asphaltic top and the escape apertures as well as the seal absolutely controls the fibrated asphalt flow. The base has a copper seal.

FIG. 4

illustrates an extruded fibre mastic product provided with grooves for the metal accessories used in connection with flow control. Escape dowel locks and supports and upper escape and seal combination control oozing tendencies in this joint. The metal forms contribute to the rigidity of the joint and afford a simple economical means toward a positive seal. The means of properly housing the dowel bars so as to hold the dowel bar in rigid position while the concrete is being poured is effective and certain.

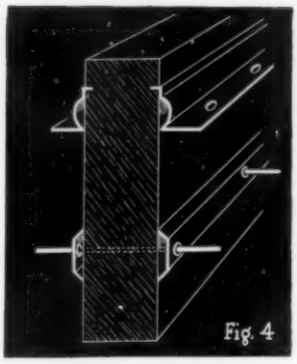
Fig. 4

FIG. 5

illustrates an upper seal which can be utilized with a backing board or with a prepared joint filler in which the joint may be poured or filled and a positive seal formed thereover. 5a-5b departures from 5.

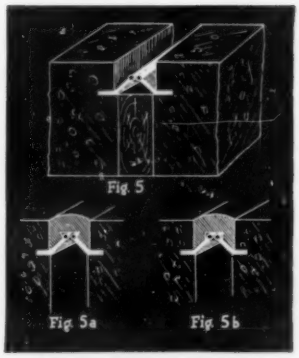
Fig. 5

Fig. 5a Fig. 5b

FIG. 6

illustrates a separate metal housing seal.

FIG. 7

illustrates a metal form for the base seal.

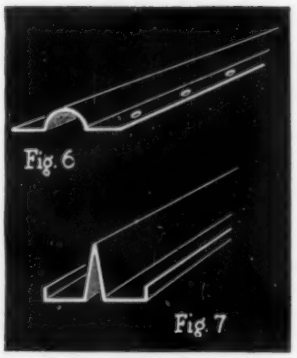
Fig. 6

Fig. 7

NOTE: All the benefits of a metal cushion joint are obtained and in addition a waterproof filler and seal with greater flexibility at lower cost.

In conjunction with the above, we furnish extruded fibrated asphalt material with the fibre content in greater relation to the asphalt content so as to furnish some resiliency. This material comes grooved with a suitable affixing of dowel supports and escape cushions.

We also furnish extruded sections such as curb cushions; bridge plank, mineral surfaced, standard and ribbed; and our metal accessories in conjunction with highway and bridge construction.

We specialize in extruded forms to meet various engineers needs.

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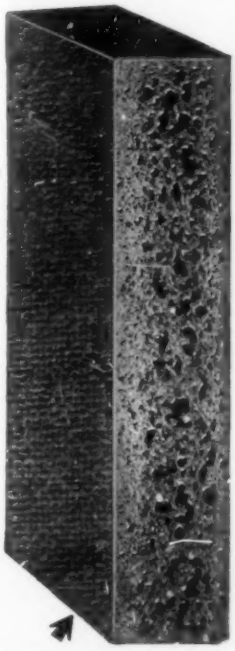

Sponge Rubber Joint—compressed to 50% thickness—the extrusion .50—recovery one hour 90-95% Felt or Mastic sides.

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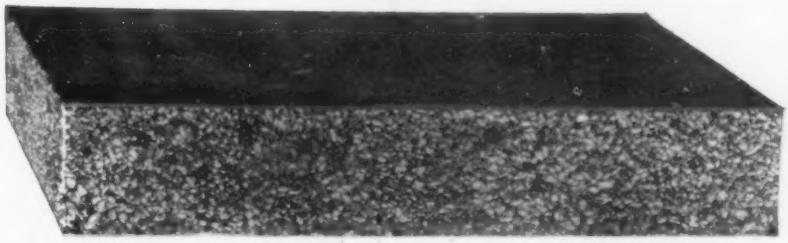
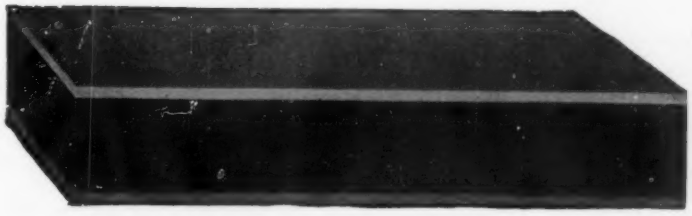
EXPANSION JOINTS

Cork Rubber Joint

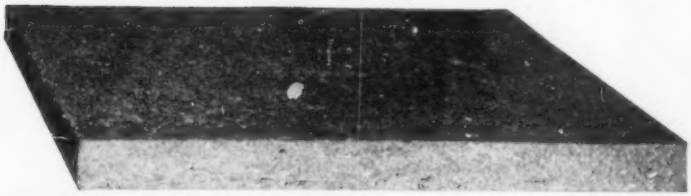


Cork Rubber Joint—compressed to 50% thickness—the extrusion .25—recovery 90-95%.

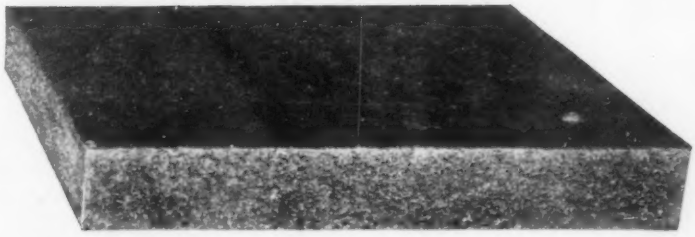


Felt Sided Asphalt Joint—compressed to 66% thickness—the extrusion .50—recovery one hour 68%—contains 70% Asphalt. Furnished with or without metal escapes or seals.

Type B Asphalt Joint—compressed to 66% thickness—the extrusion .42—recovery one hour 70%—contains 65% Asphalt. Furnished with or without metal escapes or seals.



Cork Fiber Joint—compressed to 64% thickness—the extrusion .42—recovery one hour 71%—contains 38% Asphalt. Furnished with or without metal escapes or seals.



Fiber Joint—compressed to 50% thickness—the extrusion practically nil—recovery one hour 70-75%.

THE above types of joint illustrate SERVICISED service to engineers and contractors in providing both the controlled oozing and non-oozing types of expansion joint. The specifications of the various types are shown under each type and are the minimum and not the maximum tests.

Our types of non-oozing joints will not warp or shrink in the hot sun or hot weather eliminating the necessity of wetting down before using.

The oozing types of joint are controlled by metal escape accessories making provision for the surplus flow under pressure. We also furnish engineers extruded joints for the reception of metal fittings and specialize on extruded products for engineers in State, Municipal, Railroad and Civil work.

SERVICISED service and performance have never been questioned and the same quality is being maintained as heretofore.

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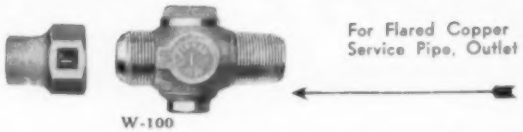
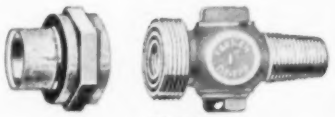


For Flared Copper Service Pipe, Outlet

W-100

With Lead Flange Union Coupling Outlet



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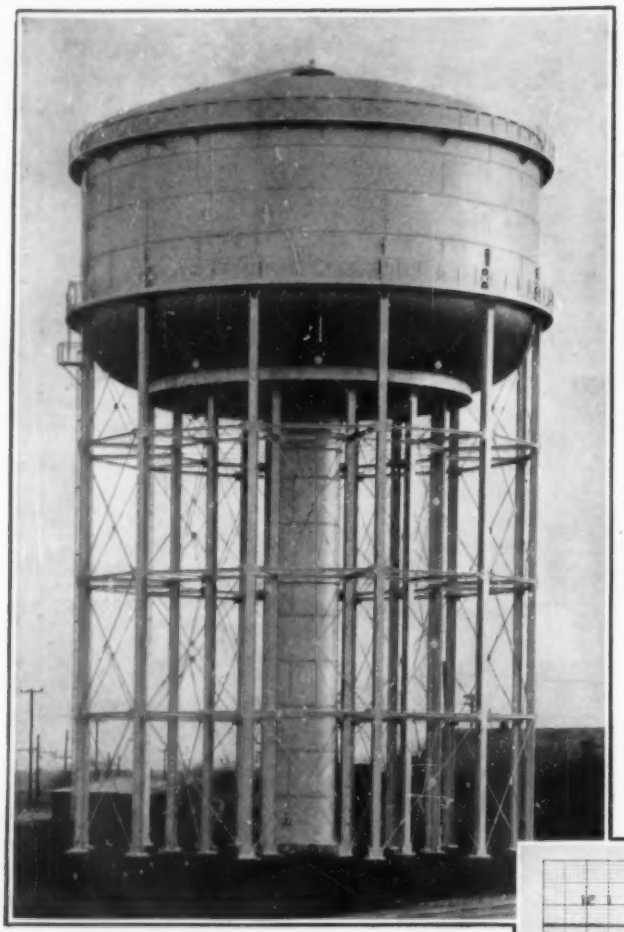
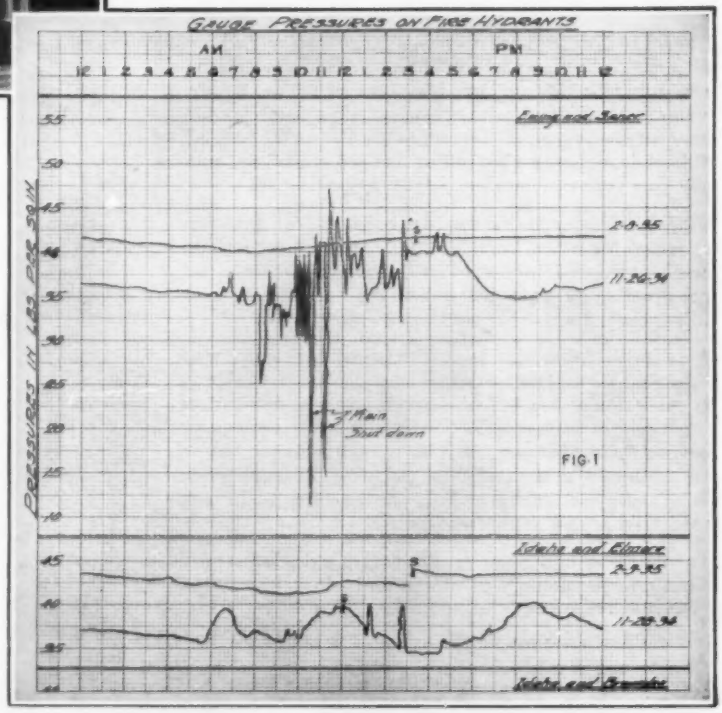


Results have certainly proven the wisdom of this Pittsburgh Des Moines Tank Installation at Dallas Texas

In January 1935, the city of Dallas put into service this 1,000,000 gallon Toroidal Bottom Tank. What it did to the pressure in the mains is vividly told by the "before and after" pressure chart, shown at the right. This increased and even pressure means satisfied customers, lower power costs for pumping, and additional revenue through increased water consumption.



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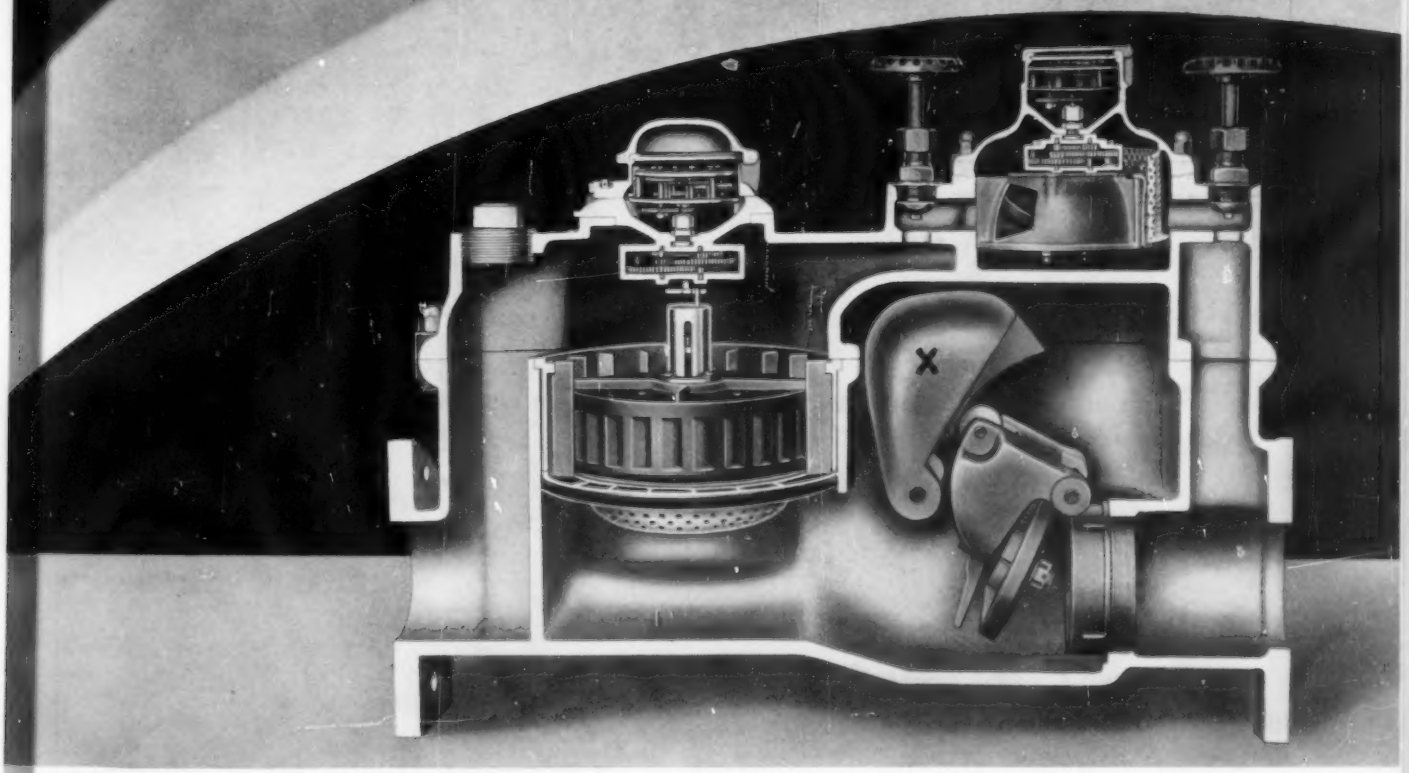

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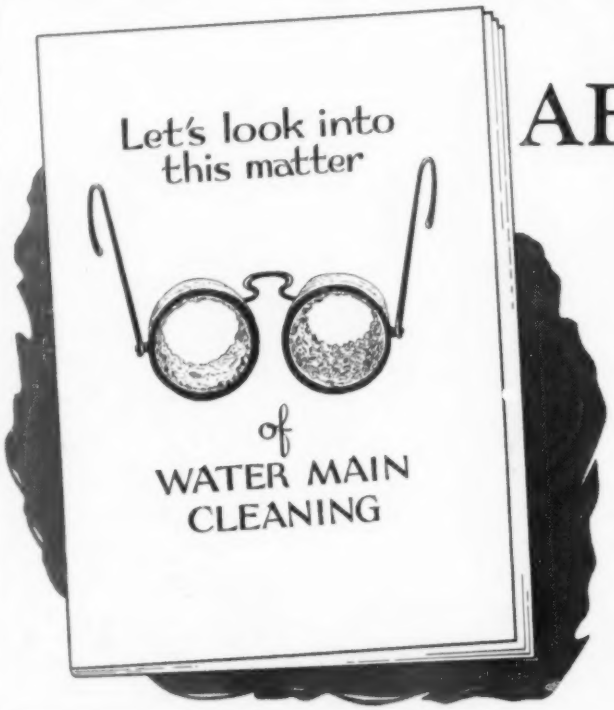
BEFORE *cleaning*—

the discharge from an 1800-foot length of 6-inch pipe was *252 gallons per minute.*



AFTER *cleaning*—

the discharge from the same pipe was *671 gallons per minute—an increase of 166%.*

—This is one of the "Typical Results" of water main cleaning by THE NATIONAL METHOD reported in the new booklet, *"Let's Look Into This Matter of Water Main Cleaning,"* now ready for mailing. This 8-page illustrated booklet tells you very briefly all the essential facts concerning the WHY and the HOW of water main cleaning, and should, we believe, be in the possession of every water works department.

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Automatic Starting Eliminates Attendant

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The automatic feature reduces the cost of maintenance and is faster and more dependable than manual starting.

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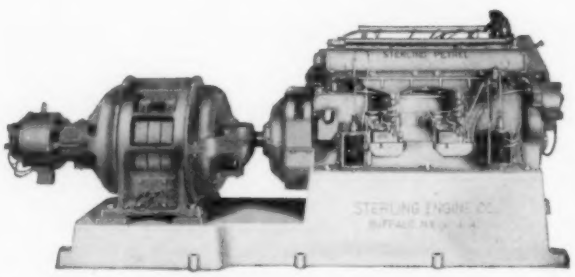

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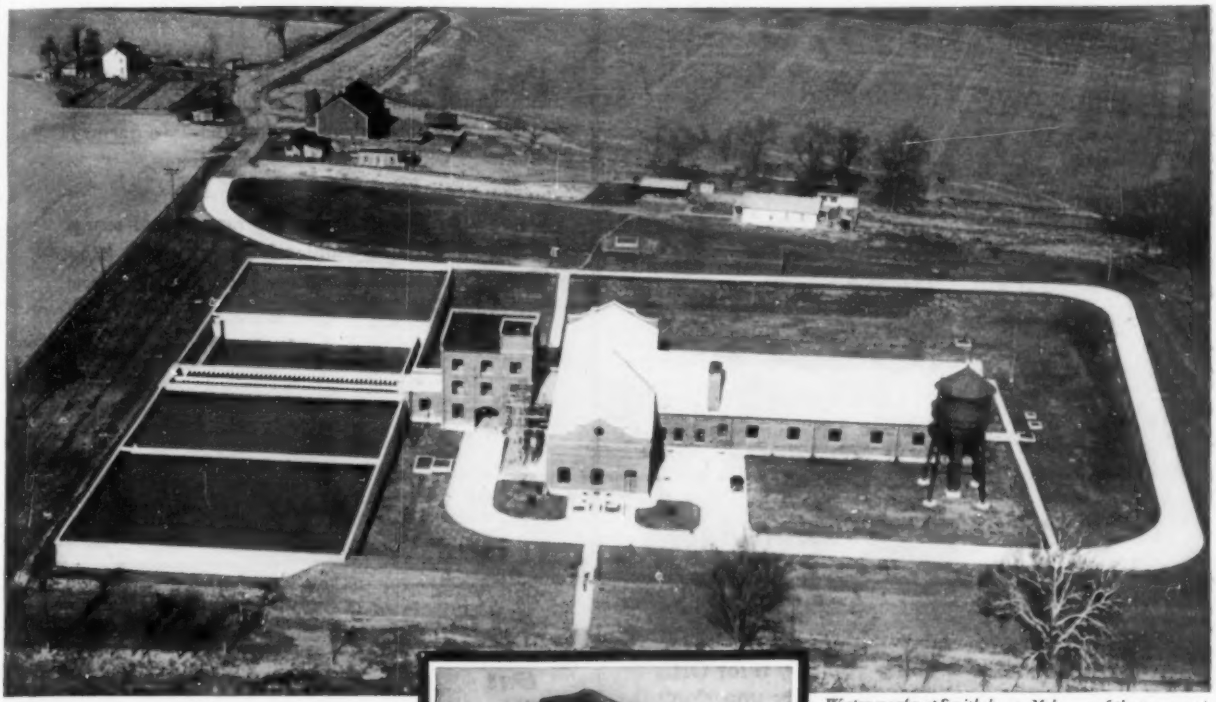

Water works at Smithsburg, Md., one of the two municipal water plants supplying the City of Hagerstown.

Hagerstown, Maryland, long a satisfied user of both Mathieson Chlorine and HTH

IT is only natural that water works officials, upon whose shoulders their communities place such heavy responsibility, should appreciate pure chemicals, trouble-free equipment and dependable deliveries. That they do appreciate these things and that they place their business accordingly is shown by the tribute to Mathieson Chemicals expressed by Albert Heard:

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(Left) Albert Heard, Secretary of the Board of Water Commissioners, Hagerstown, Md.

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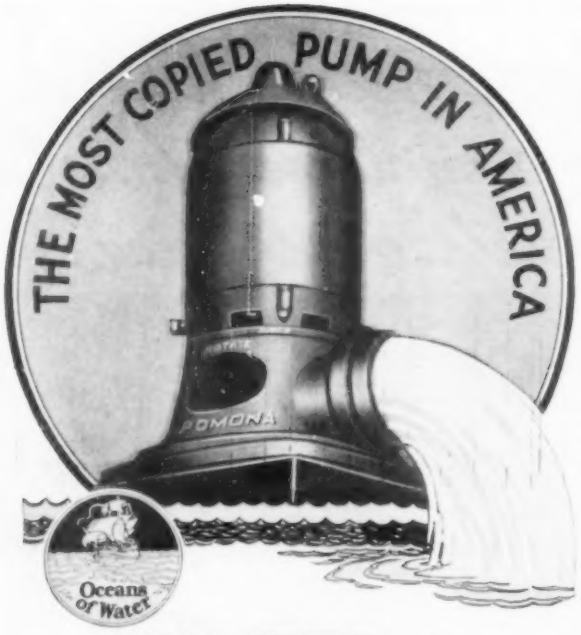

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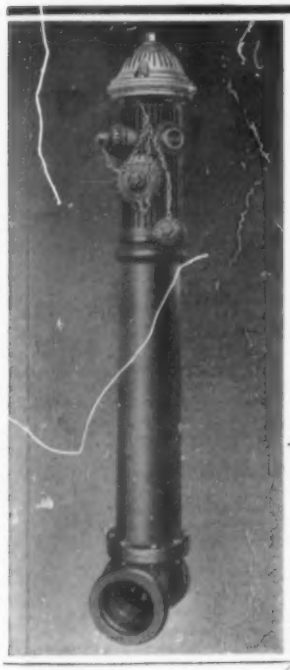

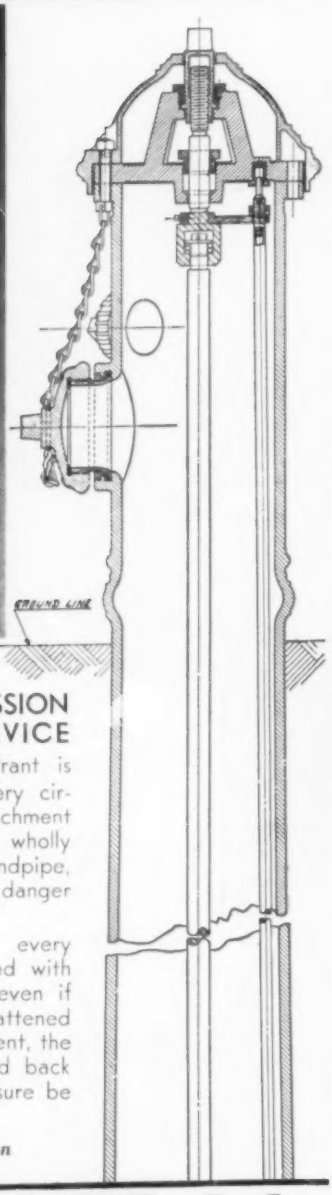

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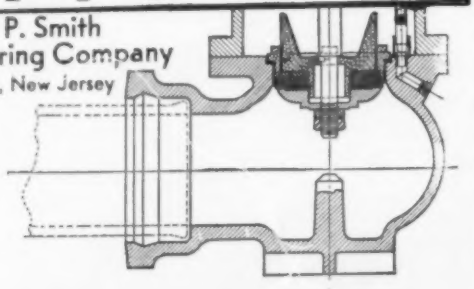

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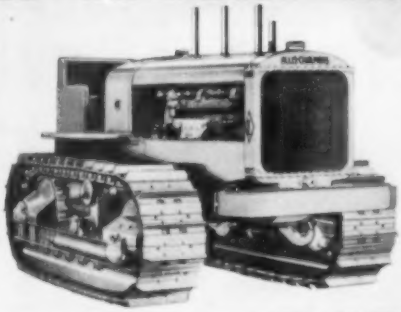

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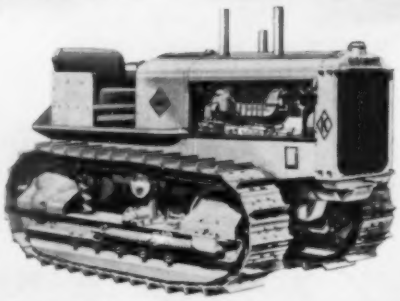

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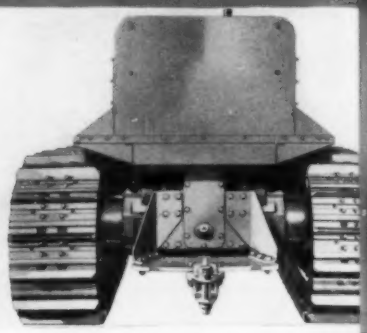

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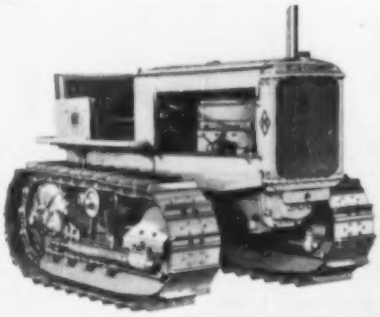
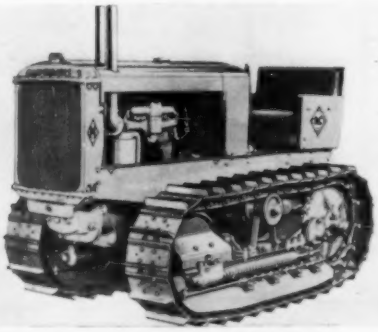
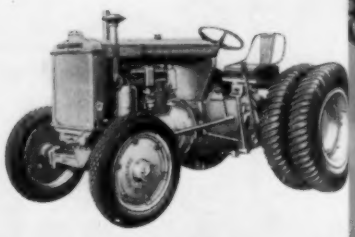


MODEL "WM" — WIDE TREAD



MODEL "M" — STANDARD TREAD



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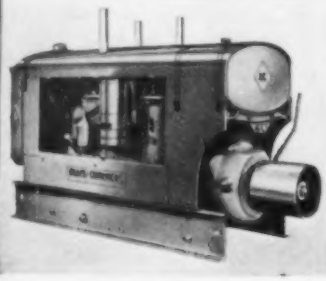
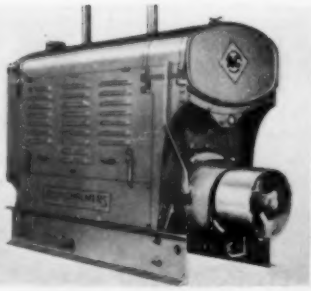
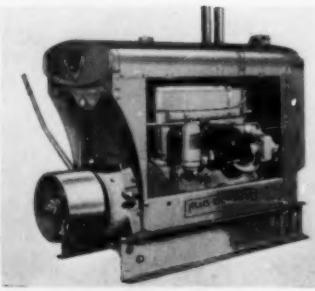


MODEL L-90 POWER UNIT

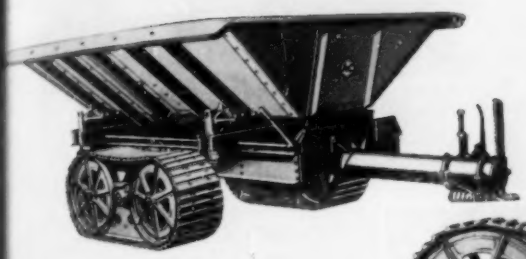


MODEL E-60 POWER UNIT

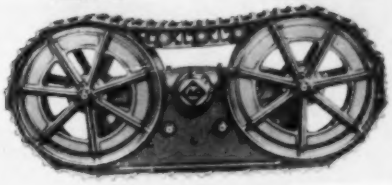


MODEL U-40 POWER UNIT

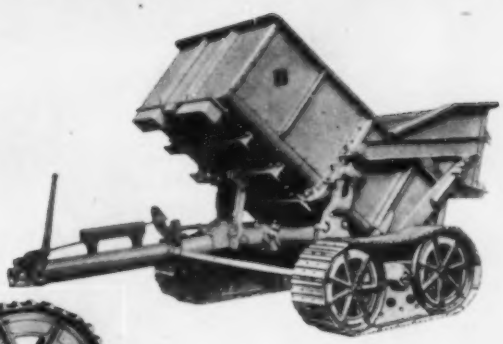
MODEL W-25 POWER UNIT



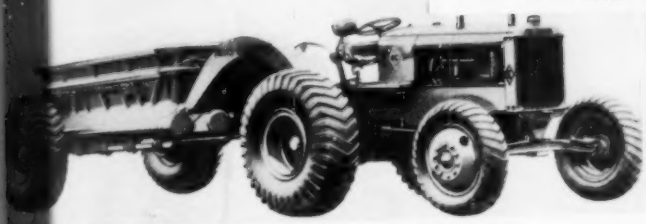
11 AND 15-YARD 2-WAY WAGON



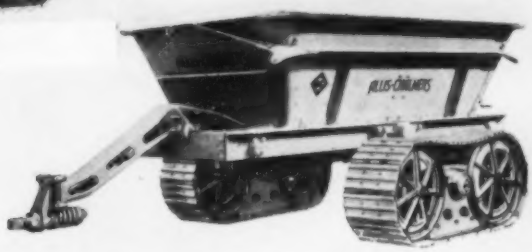
WAGON TRACKS



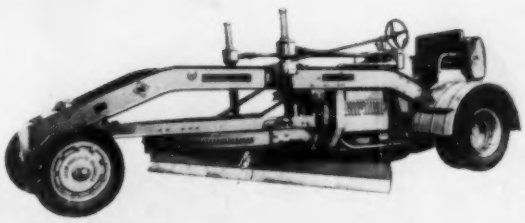
8-YARD GRAVITY DUMP WAGON



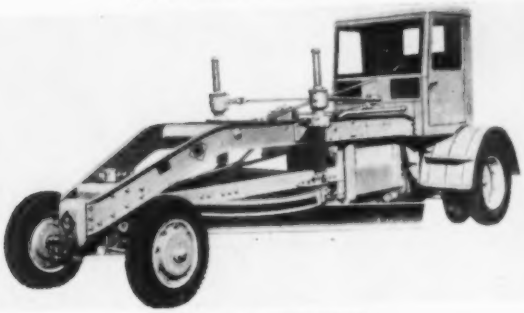
MODEL "K-T" HAULING UNIT



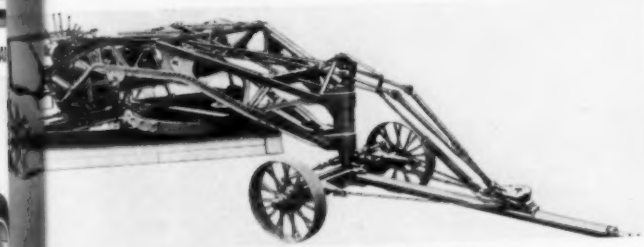
5½-6 AND 7-8 YARD WAGON



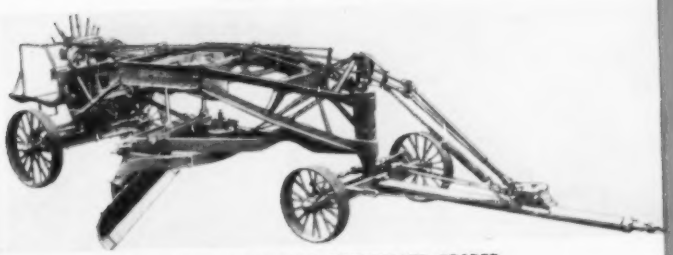
MODEL 42 SPEED PATROL



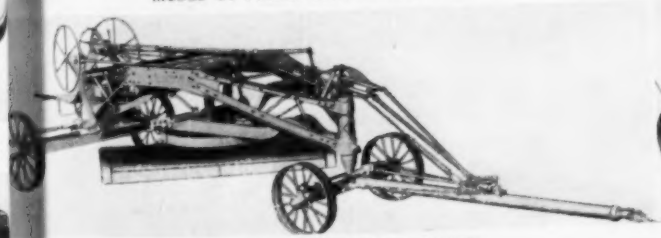
MODEL 54 SPEED PATROL



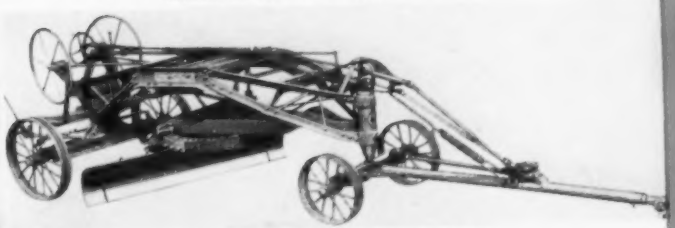
MODEL 14 POWER CONTROLLED GRADER



MODEL 12 POWER CONTROLLED GRADER



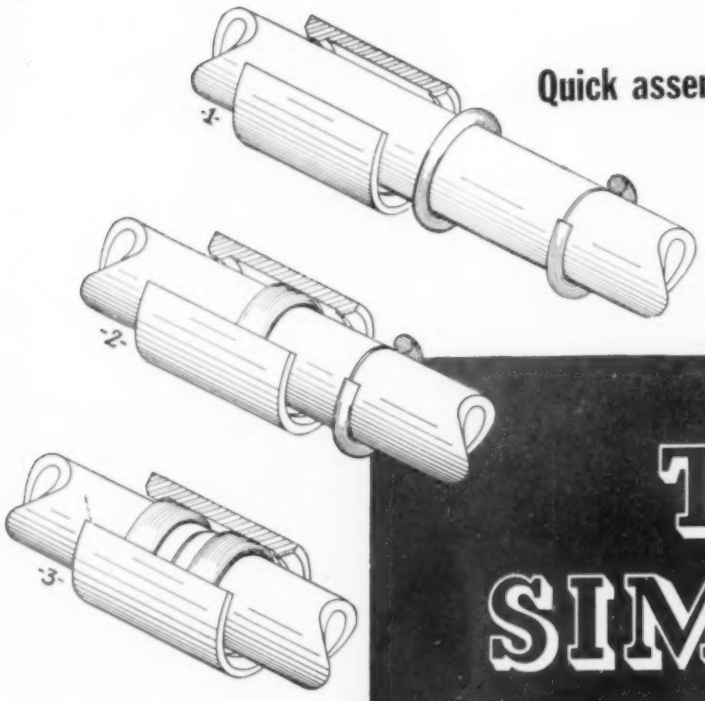
MODEL 10 HAND CONTROLLED GRADER



MODEL 8 HAND CONTROLLED GRADER

those who are more interested in value and performance
nn in tredition . . . Allis-Chalmers presents its new and
tter line for 1936. The cost-cutting Models "L" and "L-O"
th a new range of speeds. A new model "K" Series with
r speeds forward—up to 5.92 miles per hour . . . with 49.58
awbar H.P. . . . and new, convenient controls. A new, Model "K-T" Hauling Unit . . . hauls 6 to 8-yard loads from 2½ to 16 miles per hour. An improved line of blade graders and Speed Patrols. An entirely new line of power units. A line of Oil Tractors that operate on Diesel Fuel with the advantage of gasoline engine simplicity. Get more for your money in 1936—investigate the A-C line before you buy.

LLIS-CHALMERS TRACTOR DIVISION, MILWAUKEE, U. S. A.



Quick assembly means low installation costs

These diagrams show the trouble-proof simplicity of the Simplex Coupling. Consisting of only a Transite sleeve and two rubber rings, this coupling assures rapid, simple installation: (**1**) Starting position. (Pipe is marked at factory to show proper position of rubber rings.) (**2**) Second position, with one rubber ring compressed. (**3**) Final position, with both rings compressed.

THE SIMPLEX COUPLING

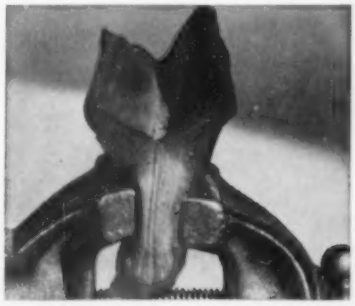
Another reason why Transite Pipe is the Economical Water Carrier

Easily assembled, flexible, bottle-tight, Simplex Couplings lower installation and maintenance expense, help keep pressure high and pumping costs permanently low.

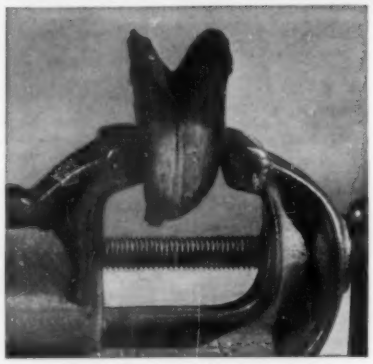
33-Year-old rubber rings outlast pipe line!

Remove rubber from the effects of light, heat and air, and it becomes virtually indestructible, as these photographs show. And these are the ideal conditions under which rubber serves as the sealing medium for pipe joints. Authentic records are available of service extending 60 years and more in America and for even longer periods in Europe.

But permanence is only part of the story. Rubber rings make watertight joints. Their flexibility permits wide sweeps with straight sections of pipe. And this same flexibility allows necessary movement under the static and dynamic loads and the vibration to which pipe lines may be subjected.



THIS 33-YEAR-OLD RUBBER RING was still good for many years of service when the pipe line was replaced. In underground pipe line service 29 years; above ground and exposed to light, heat and air for 4 years. Recovery after compression shown at right.



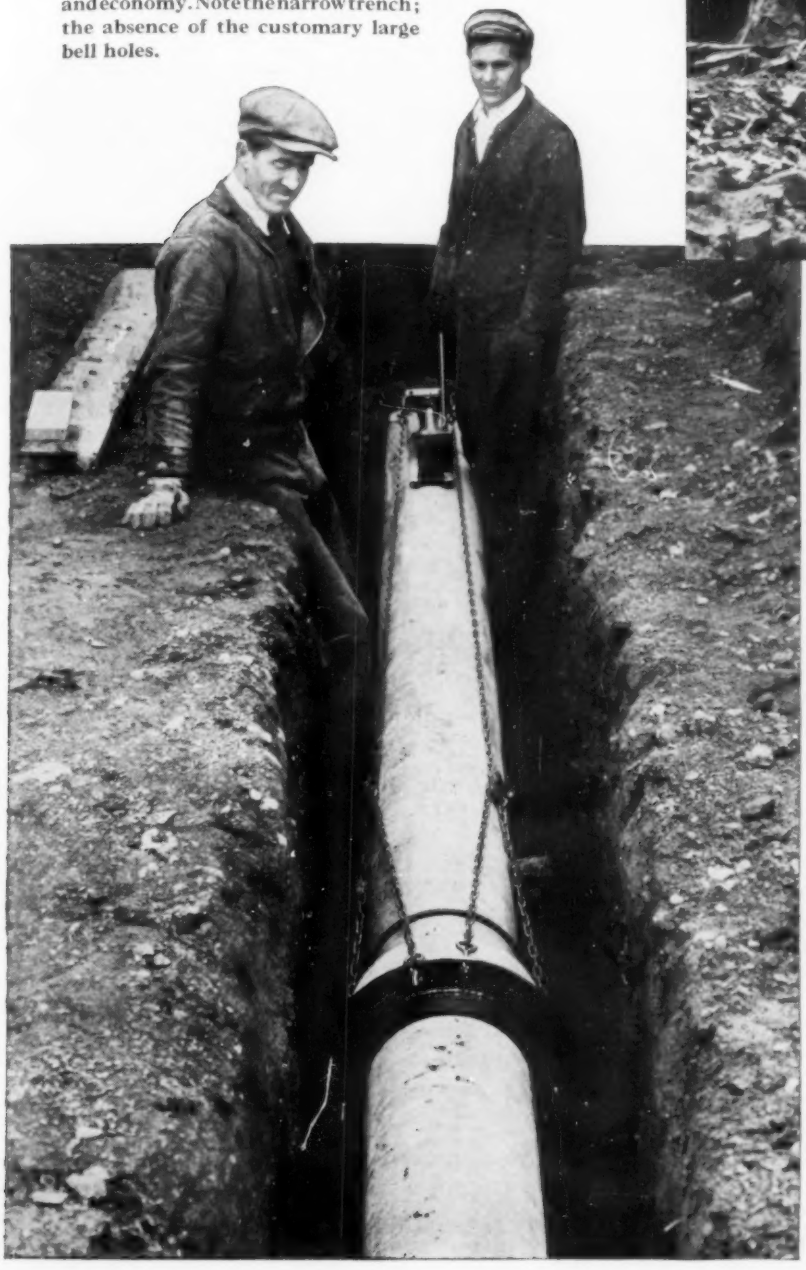
A COUPLING reduce the cost of water transportation? Yes, decidedly!

The Simplex Coupling used on Transite Pipe lines not only saves money *during installation,* but it helps greatly to keep *maintenance* and *pumping expense* permanently low.

No caulking with Simplex Couplings. Hence rapid assembly by unskilled labor. No large bell holes either; trenching costs are less.

Furthermore, Transite's flexible Sim-

UNSKILLED LABOR equipped with a special jack-type puller assembles Simplex Couplings with notable speed and economy. Note the narrow trench; the absence of the customary large bell holes.



GOING AROUND CURVES—is done quickly and economically with Transite's Simplex Couplings. On this job at Lebanon, Virginia, 6″ Transite Pipe is used, and an angularity of 10° to 12° is possible at each joint.

plex joints are permanently *bottle-tight*. They prevent the breaks in mains, the heavy maintenance expense, so often caused by leaks washing away supporting soil.

And by also preventing a multitude of lesser leaks, Simplex joints help maintain constant pressure and eliminate the costly pumping of water that, through leakage, never reaches the consumer.

And as for Transite, the pipe . . . It is built for permanence. It is designed to end corrosion troubles, inside, outside, clear through. Transite means lower installation costs, lower maintenance costs, lower pumping costs. In every respect, Transite Pipe is the *economical* water carrier.

• • •

May we send you our illustrated brochure; full details on Transite Pipe and Simplex Couplings? Mail the coupon.

Johns-Manville's
contribution to Economical Water Transportation

TRANSITE PRESSURE PIPE

An Asbestos Product

JOHNS-MANVILLE
22 East 40th Street, New York

Send the Transite Pipe Brochure.

Name_____ Title_____

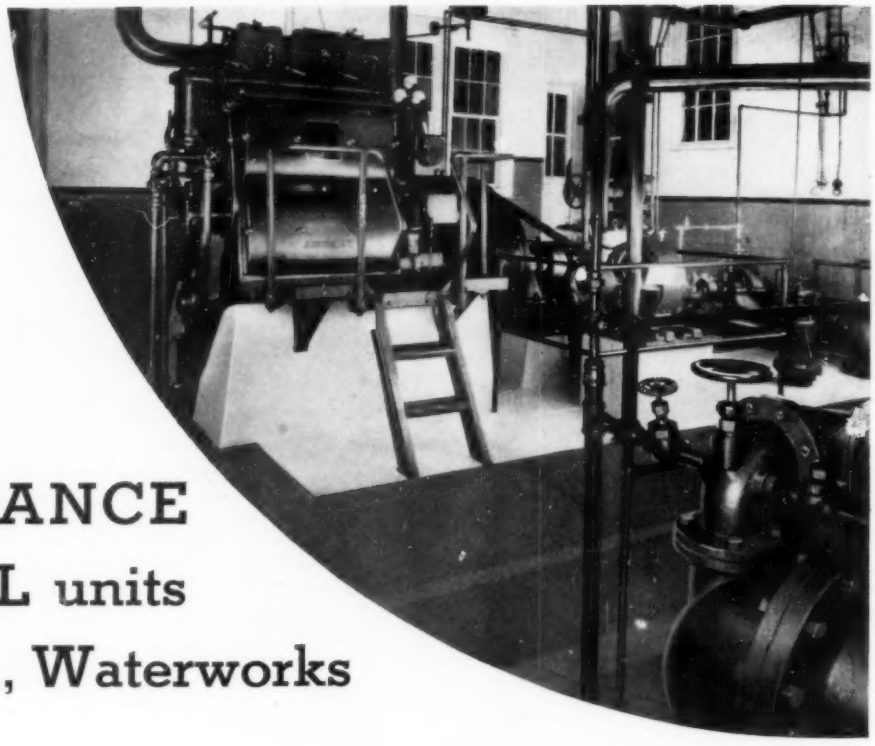
Organization_____

Address_____

City_____ State_____

AC-1-36

McINTOSH & SEYMOUR ECONOMY DIESELS...



BIG PERFORMANCE from SMALL units at Sayre, Pa., Waterworks

IN 1934 the privately owned pumping station which supplies water to the Village of Sayre, Pa., followed the lead of many others by retiring its three 100 hp steam boilers from regular service in favor of the demonstrated economies of a small McIntosh & Seymour Diesel Engine.

Based upon investigation of M-S performance records in waterworks, lighting and power plants ranging up to 950 hp requirements, the compact 3 cyl, 120 hp standard M-S Diesel was selected for triple duty—

- to drive a low duty gear connected pump which lifts and forces river water through aeration into a settling basin;
- to drive a 1½ million gallon capacity high duty gear connected pump forcing the water through filters to storage;
- to drive a belt connected generator for station lighting and auxiliary power equipment.

The satisfactory experience which the owners of this engine report is not unusual in the history of many McIntosh & Seymour Diesel Engine economies demonstrated in municipal manufacturing plants and a host of other industries.

If you have a power cost problem, it will pay you to investigate such important factors as economy in fuel, low upkeep cost, dependability under all conditions which are inherent and applied economies of McIntosh & Seymour design, regardless of engine size.

M-S DIESELS COMPRISE:

35 Standard Units from 120 to 1600 bhp, 3 to 8 cylinders

McINTOSH & SEYMOUR CORPORATION

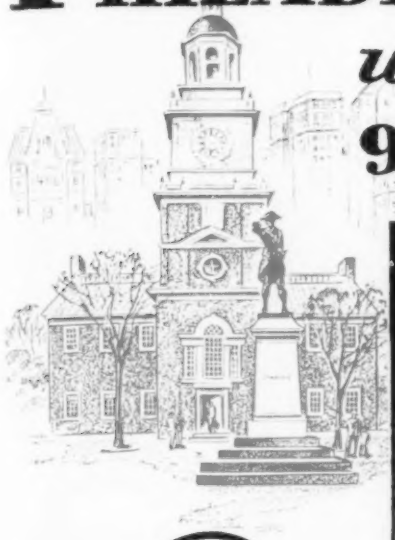
(DIVISION OF AMERICAN LOCOMOTIVE COMPANY)

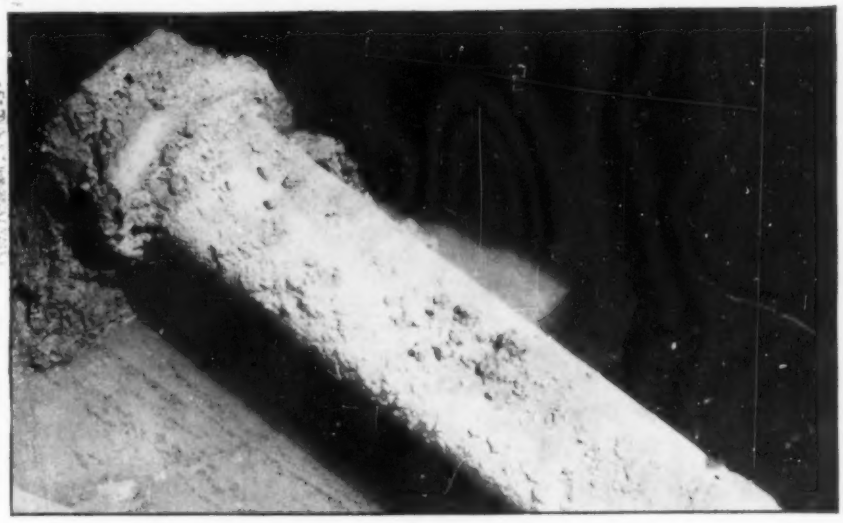
MAIN OFFICE AND WORKS, AUBURN, N. Y.

NEW YORK, N. Y., 30 Church St. BOSTON, MASS., 20 Newbury St. CHICAGO, ILL., McCormick Bldg. WASHINGTON, D. C., Barr Bldg.
HOUSTON, TEXAS, Esperson Bldg. KANSAS CITY, MO., Commerce Trust Bldg. SAN FRANCISCO, CAL., Bourn Bldg.

Do you mention THE AMERICAN CITY? Please do.

PHILADELPHIA'S *mains for water distribution are* 98.3% CAST IRON PIPE





Section of 106-year-old cast iron water main still rendering satisfactory service in Philadelphia's distribution system.

The following tabulation shows the percentage of cast iron pipe used in the water distribution systems of the 15 largest cities in the United States as reported by their Water Departments.

CITY	PERCENTAGE
New York	97.2
Chicago	100.0
Philadelphia	98.3
Detroit	98.7
Los Angeles	74.0
Cleveland	98.9
St. Louis	98.7
Baltimore	99.7
Boston	99.8
Pittsburgh	97.9
San Francisco	76.8
Milwaukee	100.0
Buffalo	99.8
Washington D.C.	98.8
Minneapolis	95.8

INCLUDED in the 2471 miles of pipe in Philadelphia's water distribution system—*98.3% cast iron*—is the oldest cast iron water main in America, functioning satisfactorily after 114 years of service. With a peak consumption of 378 million gallons daily, Philadelphia's system has a pumping capacity of 705 million gallons daily of raw water from the Schuylkill and Delaware Rivers. There are more than 110 acres of slow sand filter beds.

The average percentage of cast iron pipe in the water distribution systems of the 15 largest cities in the United States is 95.6%. Cast iron pipe is the standard material for water mains. It costs less per service year and least to maintain. Its useful life is *more than a century* because of its effective resistance to rust. It is the one ferrous metal pipe for water and gas mains, and for sewer construction, that will not disintegrate from rust.

For further information address The Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, 1015 Peoples Gas Building, Chicago, Illinois.

CAST IRON PIPE

METHODS OF EVALUATING BIDS NOW IN USE BY ENGINEERS RATE THE USEFUL LIFE OF CAST IRON PIPE AT 100 YEARS

Mention THE AMERICAN CITY—it helps.

"Think . . . you're going to invest a lot of money in Water Meters . . . you want to protect that money . . . you don't want a lot of obsolete meters on your hands a few years from now . . . I've found it pays to buy Quality in Water Meters . . . Quality that gives you sturdy, simple, true-running accurate meters . . . meters in which the Interchangeability of parts wipes out depreciation . . . and they should be backed by a record of actual service—"

—in brief

Trident

and *Lambert* WATER METERS

Made and Sold . . . . OVER 6 *Million!*

Precision-gauging for the future

Years from now you'll appreciate

what this man is doing today. He's not trusting the cutting accuracy of the machine in the construction of the meter main casing.

•

No. . . . he's gauging. He's testing the diameter and depths of the different sizes of main casings—with gauge after gauge!

•

He's *making certain* that, if you want to put in a new gear train or disc chamber, 5, 10 or 20 years from now—*it will fit exactly.* In other words, your *new, interchangeable* part will be exactly right for your *old* meter. What a saving!

•

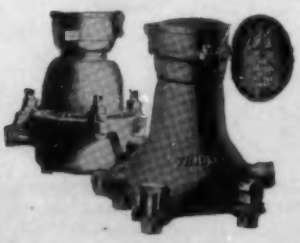
That's one way of telling you about the quality of Trident and Lambert Water Meters—of which a type for every service is made by the NEPTUNE METER CO., (Thomson Meter Corp.) 50 West 50th St., (Rockefeller Center) New York City . . . also . . . Neptune National Meters, Ltd., Toronto, Canada.

Pioneers in Meter Progress

Yesterday

TODAY

Tomorrow



JANUARY, 1936

Vol. LI, No. 1

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

A Dustless Asphalt Plant Controlled by Automatic Devices

The Human Element Is Reduced to a Minimum at This New Plant

By CHARLES E. BROKAW
Superintendent, Division of Highway Maintenance, Department of Public Works, Cincinnati, Ohio

WHEN the Highway Maintenance Division of the city of Cincinnati undertook, in 1929, the construction of a modern hot-mix asphalt plant, it proceeded into a practically new field in which there existed little experience as a guide. Because this asphalt plant is located in a semi-residential district, the problems of dust, dirt, and noise immediately presented themselves and were overcome only after a great deal of experimentation. Other difficulties which were surmounted were: the vertical storage of aggregates; the conveying of these aggregates; and the satisfactory proportioning of mixes.

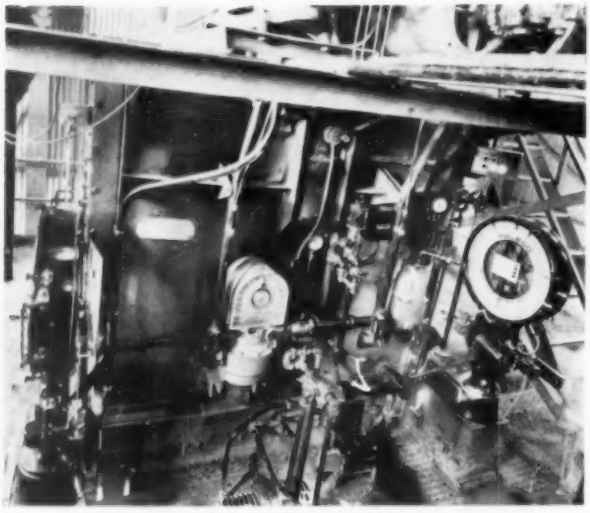
We capitalized on this painfully acquired experience in the construction of our new 40-ton-per-hour capacity combination hot- and cold-mix asphalt plant. Our specifications were written in sufficient detail to insure that the units furnished would conform to our performance and capacity requirements without excluding any particular bidders. A location plan and flow diagram accompanied these specifications to better inform the bidders. In addition, in the specifications, we advised the prospective bidders to visit the actual plant location in order to eliminate any possible misunderstandings. As the three steel materials silos and the material-conveying equipment, which were erected with the first plant in 1929, were provided with capacities adequate to permit the operation of this new plant in addition to the old one, it was necessary to construct only the plant proper, an additional asphalt storage tank, and another 150-hp boiler.

All building and machinery foundations were designed and constructed by the city, information as to dimensions, loads, etc., being obtained from the contractor. The actual machinery was erected and put into operation by the contractor, after which it was run for a 30-day trial period, in which time the few inaccuracies which occurred were remedied by the contractor.

The design of our new asphalt plant is such that the

THE OLD AND NEW MUNICIPAL ASPHALT PLANTS, SHOWING THE SEMI-RESIDENTIAL DISTRICT, CINCINNATI, OHIO

The two 60,000-gallon asphalt tanks are seen at the extreme right; the old asphalt plant is in the center of the picture, and the new plant is the tall building at the extreme left



THE OPERATING FLOOR OF THE ASPHALT PLANT

human element is reduced to a minimum. All measurements are controlled by electric-eye-operated photo electric cells. Warning lights appear when any portion of the plant fails to function. The mixing time is controlled by an automatic time lock.

Receiving and Storing Asphalts

The asphalt plant is served by a railroad siding upon which all materials are delivered. Asphalt cement delivered in tank cars is pumped into two 60,000-gallon-capacity tanks. Steam coils in these tanks permit the pumping of the asphalt through steam-jacketed lines to the old plant as well as to the new plant. Liquefier and fuel oils, also delivered by tank cars, are stored in a horizontal cylindrical tank, whence they are pumped to the two plants. Filler dust is unloaded into a vertical cylindrical bin through a dust elevator, and is conveyed by compressed air through seamless steel pipes to the two asphalt plants.

Handling Aggregates

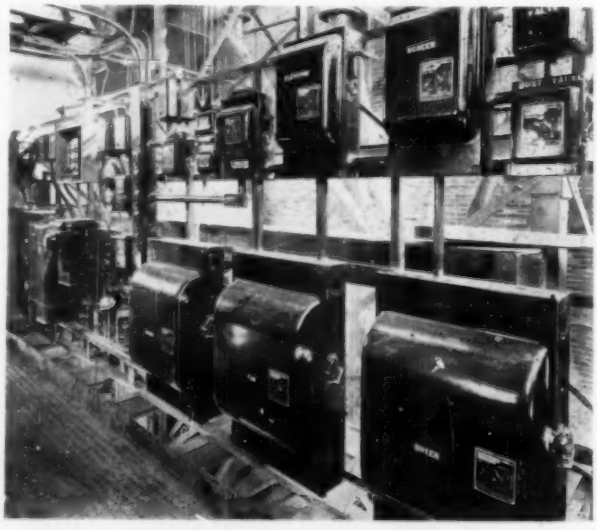
The aggregates, fine sand, coarse sand, and stone, are unloaded from hopper-bottom cars into a track hopper. These materials are then conveyed by means of a metal flight conveyor and a 10-ton-per-hour capacity elevator to any of the three steel storage silos. From the silos, which are each 16 feet in diameter and 60 feet high, the aggregates are moved by link conveyors provided with grasshopper motion knock-out arms to a transverse conveyor and finally to the main conveyor belt.

The first processing step is the drying and cooling of the aggregates for cold mixes, or drying and heating for hot mixes. This is accomplished in a double-shell, return-flow, revolving cylindrical steel drum, which is internally oil-fired at each end. This drum is constructed of ⅜-inch steel plate, is 8 feet in diameter, and 21 feet in length. It has a capacity sufficient to dry and heat to 400°F. 60 tons per hour of mineral aggregate having a moisture content of 5 per cent by weight, or to dry and cool to 100°F. 40 tons per hour of mineral aggregate having a moisture content of 5 per cent by weight when the atmospheric temperature is 70°F. Material entering the outer shell is dried by blasts of air at a temperature of about 250°F., heated by nests of oil burners located at each end of the shell. The material is moved longitudinally through the drum, being thoroughly exposed to the drying air by a series of flights and showering cups. After traversing the entire length of the outer shell, the aggregate is raised by flights to the inner shell, through which it is conveyed in the opposite direction to a hot materials elevator located at the starting end. Aggregate to be used in cold mixes is subjected to drafts of cooling air while traversing the inner shell, which lower its temperature to about 100 F. By an adjustment of the air intakes, aggregates for hot mixes are heated to about 400 F., while they travel through the inner shell. The great volumes of air necessary in these drying operations are provided by suction through the dust-collecting system induced by an exhauster fan driven by a 60-hp electric motor.

Dust Is Absent

The fact that this plant is located in a semi-residential district, as well as necessary protection to workmen and machinery, makes the positive collection of dust mandatory. Our specifications required a 99.5 per cent efficiency of dust collection, and we have been able to secure this efficiency. The following locations in the bituminous mix manufacture, at which dust is created, are connected to this dust-collection system: dryer drum, rotating screen, hot materials elevator, and pug-mill mixer.

By far the greatest volume of dust originates in the dryer drum because of the agitation of the aggregates, coupled with the high velocity of the drying air. In order to protect the dust-collecting equipment from the abrasive action of larger particles, the air exhausted from the dryer is passed through a knock-out box, which by a combination of baffles decreases the velocity of this air, causing the larger particles to fall to the bottom of the box, whence they are conveyed by gravity to the elevator. After passing through the knock-out box, the dust-laden air is passed through six cyclone-type dust collectors. In these patented collectors, the air is given a whirling motion, forcing all dust to the collector walls by centrifugal action. A constantly decreasing radius of rotation reduces the lineal velocity of this dust until it drops through the bottom of the collectors, where a screw conveyor transports the dust to an ingenious receiver, which returns the dust by air to the dust-storage bin.



THE ELECTRIC CONTROL PANEL

Screening and Storage

From the dryer, the aggregate is raised to the screen above the storage bin in an electrically driven bucket type elevator, which has a capacity of 75 tons of aggregate per hour. The total lift of this elevator is 70 feet, which allows sufficient fall to the screen.

A horizontal cylindrical, two-compartment type screen, revolving at a speed of 12 rpm, distributes the aggregates by size into a 100-ton-capacity, two-compartment steel bin, located just below. This screen, which is 4 feet, 6 inches, in diameter and 12 feet, 6 inches, long, has screen areas of 80 square feet for both bin sections, has a capacity of 60 tons of aggregate per hour, and is electrically driven on roller bearings. All aggregate not passing either of the screen compartments is shunted to a 2-cubic-yard rejection bin located on a side of the storage bin and so arranged that its contents can be discharged by gravity into trucks from time to time as necessary. An 8-cubic-yard dust-storage bin is also located adjacent to the aggregate bin. This bin, which is fed from the large storage bin described earlier and from the dust-collection receiver, is provided with a rotary feeder and screw conveyor to introduce the dust into the mix.

Weighing the Aggregate

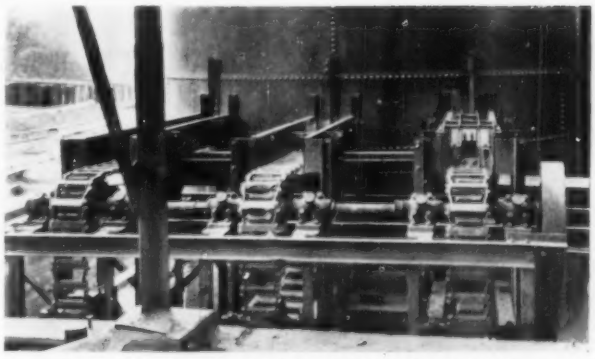
Each of the two compartments in the aggregate storage bin is provided with two chutes. The larger of the chutes is equipped with a manually controlled positive quick cut-off gate, while the smaller chute is connected with an electric vibrating feeder controlled by a photo-electric cell. The aggregate is weighed on a 5,000-pound-capacity dial scale graduated in 5-pound measurements and provided with a 500-pound-capacity tare beam graduated in 2-pound measurements. The scale is equipped with an adjustable intercepter, single cut-off attachment with two dials and three adjustable single intercepters. In weighing aggregate, the intercepter being set for the desired weight, the operator opens the large manually controlled gate until the scale needle approaches the required setting; the operator then shuts this gate and starts the vibrator, which admits the aggregate in very small increments. As soon as the dial needle intercepts the electric-eye beam, the photo-electric cell cuts the current supplying the electric vibrator, thus instantly stopping the flow.

The filler dust to be admitted to the mix is also weighed on the aggregate scales, the electric eye controlling a screw feeder mechanism with a positive cut-off gate. It is possible to control the dust in the mix to within half a pound.

Liquefier and Asphalt

After the aggregate, or aggregates, is admitted to the mixer box of the Simplicity plant, the liquefier is introduced, its purpose being to insure a more perfect distribution of the bituminous binder. The liquefier is measured by a predetermined tank meter constructed to deliver from one to five gallons in multiples of one pint. After the face dial has been set for the required amount of liquefier, it is necessary only for the operator to open a quick-acting valve, all measurements being entirely automatic.

The asphalt, delivered to the new plant in a 2½-inch steam jacketed line, is controlled by a 2½-inch thruster valve electrically operated by a photo-electric cell controlled by the asphalt dial scale, which has a capacity of 500 pounds, in ½-pound increments. This thruster valve is closed by a heavy weight, which is lifted by a small electric motor when asphalt is required.



THE LINK CONVEYORS FOR MOVING AGGREGATES FROM THE STORAGE SILOS
Note the "grasshopper motion" knockout arms on the right-hand conveyor, to clear sand and reduce wear on the conveyor

The asphalt weighing bucket, suspended from scale levers, is equipped with a mechanically operated slide gate for discharging the asphalt cement across the entire length of this mixer.

Mixing the Batches

The steel mixer box is 6 feet square by 3 feet 6 inches deep, with its bottom curved to a 20½-inch radius, and has a 4,000-pound batch capacity. The mixer is of the pug-mill type and consists of two 4-inch square nickel-steel shafts, to which 48 5½-inch by 1-inch replaceable manganese steel tips are bolted, driven by a 75-hp electric motor at a speed of 47-rpm. Because of the great wear to which all mixer parts are subjected, the entire interior of the mixer box is lined with replaceable ½-inch manganese steel plates. Two steel dump doors each 14 inches by 22 inches operating on a manganese steel frame and controlled by a quick-acting air-operated piston, permit the complete discharge of a hot mix in about ten seconds. The piston operating the dump-doors is controlled by a time lock to insure the correct mixing time.

Control

A system of signal lights informs the operator whether the mixer dump-doors and the aggregate gates are open or closed and whether the asphalt valve is completely shut. Each unit of this asphalt plant is driven by an individual dust-proof motor which has been designed to meet the demands of the driven unit. Also, each of these motors is operated by a remote-control panel located on the operator's platform, so that he has complete control of all plant operations and can react immediately to any emergency.

The arrangement of this new asphalt plant is such that trucks can drive under the sheltered mixer, receive their loads and continue through the yard, no backing or any other maneuvering being necessary.

A sheet-metal-covered structural steel building houses the asphalt plant, having been constructed after the erection of the machinery.

While the new plant has not been in operation long enough to justify a complete comparison with our older plant, we have definite proof of the quality of its mixes and the economy of its operation. Also, it is quite evident that the minimum dust and noise requirements occasioned by a residential neighborhood have been more than satisfied in the design and operation.

Overcoming Handicaps in Street Resurfacing

St. Louis Uses Hot and Cold Mixes That Fill the Bill and Fit the Budget

By **FRANK J. McDEVITT**
Director of Streets and Sewers

THE city of St. Louis passed an 83-million-dollar bond issue in 1923, to be expended on various public improvements, and among these improvements were included the widening and reconstructing of certain streets. The city charter provides that on new work of this character the cost is to be defrayed jointly by the city and property owners residing in the so-called benefit or taxing district. During the ensuing ten years there were constructed approximately 6 million square yards of new streets, largely concrete with a binder course and sheet asphalt top. The total cost was 30 million dollars, of which 5 million came from bond issue funds, and the rest from taxpayers in the benefit districts in the form of special tax bills.

Shortly after the present administration took charge of city affairs, during the spring of 1933, the Board of Aldermen passed an ordinance regulating the scale of wages for skilled labor. Authorities on the legality of tax bills immediately claimed this ordinance would invalidate any tax bills issued to cover street improvements, so all work of this character was held in abeyance pending the outcome of a test suit in the courts. The Supreme Court of the state of Missouri only recently handed down a decision rendering the ordinance invalid. Since no contracts for street improvements could be awarded during this court litigation, the city was faced with a serious problem. With an average of 600,000 square yards of new street construction each year during the previous ten years, and then a sudden stopping of all construction, the city had cause to worry.

A 35 Per Cent Budget Cut

The Department of Streets and Sewers, whose functions are primarily maintenance, began looking around for ways and means to overcome this situation. It was not easy, because in order to help the Mayor balance the budget, a cut of 35 per cent in appropriation had to be absorbed. The city owned and operated an asphalt plant which turned out about 75 tons of product per day used entirely for patching. Could this plant be speeded up and arranged to turn out a satisfactory mixture which would stand the wear and tear of heavy traffic?

The Hot Mix with Local Aggregate

St. Louis has many miles of brick and granite block streets which have been in service thirty to forty years. While badly worn, they have reached a permanent settlement and will serve as a good foundation for resurfacing. Why tear them up and replace with a concrete sub-base, as had been done previously? Surely some cheap and durable form of covering could be devised. Although plenty of asphaltic materials were available with a low freight rate, something harder, tougher, and cleaner than the available limestone aggregate had to be obtained. Trap rock could be secured and, while satisfactory, the cost was prohibitive. The lead mines of southeast Missouri have a waste product called chats. It is a dolomite, very hard and very tough. There are mountains of this material around the various lead mines, and a suitable gradation can be secured by inexpensive screening. All this material will pass through a ½-inch screen with about 3 per cent retained on ⅜-inch, 35 per cent retained on No. 4, 38 per cent retained on No. 10, 15 per cent retained on No. 40, and about 10 per cent retained on No. 80 to No. 200 screens.

Using this gradation with about 5 per cent of 85 to 100 penetration asphaltic cement gives a very satisfactory mix. Several experimental stretches of brick and granite block streets were resurfaced during the spring of 1933. The

CLARK AVENUE, ST. LOUIS, MO., AT THE SAME POINT BEFORE AND AFTER RESURFACING THE GRANITE BLOCK PAVING WITH HOT MIX

surface must be thoroughly cleaned and broomed, especially between the joints. A prime coat of ¼-gallon per square yard of asphalt emulsion is applied first and is followed with the asphaltic concrete plant mix at about 275 degrees F. After rolling in place, the street can be opened to traffic in about thirty minutes. The surface has a rough texture, and is absolutely non-skid even in wet weather. The use of a seal coat is not necessary, for the material seals under traffic in a short while.

St. Louis is subject to wide and sudden changes in temperature, particularly during the winter months. It is difficult to secure sheet asphalt streets which will not wave in the summer and also be free from cracking or checking in the winter. The asphaltic concrete resurfacing mixture withstands severe temperature changes with an entire absence of bleeding or cracking. Some of our resurfaced streets two and one-half years old show no deterioration under heavy traffic, and would appear good for at least ten years with little or no maintenance cost.

Work Under CWA

Shortly after completing our first streets in the spring of 1933, the CWA was started by the Federal Government. Notwtihstanding considerable opposition because of the experimental character of the work, a large street-resurfacing program was approved and many miles of practically new streets were completed. Broadway, a street paralleling the Mississippi River and extending from one city limit to the other, a distance of 18 miles, was resurfaced almost completely in the short space of 60 days. This work cost about 50 cents per square yard. Labor represents one quarter, and the balance is material. Up to date 1,600,000 square yards of this resurfacing have been put in place, partially at governmental expense, and without any cost to the abutting property owners. The quantity of material used will vary from 110 pounds to 200 pounds per square yard, with a fair average of 130 pounds. It all depends on the character of the surface. After it is compacted with a road roller, the thickness over high spots will average one inch. Holes over two inches in depth must be filled and hand tamped as a separate operation in order to prevent shoving. Abandoned street-car tracks have been surfaced over with this plant mix in a satisfactory manner. Care must be exercised, however, to first grout all loose rail joints in order to secure a firm foundation.

Making a Pre-Mix with Asphalt Emulsion

During the CWA activities a number of penetration telford macadam streets were installed, using crushed limestone from five different quarries in the local area. The streets using asphalt emulsion are generally better than those using cutback. Regardless of the materials and care exercised, it is difficult to secure a uniform penetration. It was therefore decided to install a plant for pre-mixing with emulsion. The city operates a large quarry with prison labor in connection with the city workhouse. The stone is elevated from the quarry to the crusher and screened into storage bins for delivery to trucks. Nearby a motor-operated batch concrete mixer was installed along with three tanks, each holding a car of emulsion. An air compressor forces the emulsion into the mixer, where it is thoroughly mixed with the crushed stone and dumped into trucks for delivery to the job as a cold mix. This plant, composed largely of second-hand material, cost about

LOADING A DODGE TRUCK WITH THE COLD SURFACING MATERIAL PRE-MIXED IN A KOEHRING PAVER

$1,500 and has a capacity of 500 tons per day. Under a PWA project the crushing and screening equipment is being enlarged and modernized. This plant will enable the city to resurface many secondary streets at little or no expense to the property owners.

Alternates for Widening and Costs

It should be noted that where increased traffic conditions suggest the advisability of an expensive street-widening program, it would be more economical to consider first the possibility of relieving the traffic congestion by the simple and cheap expedient of resurfacing one or more adjacent parallel streets. Before embarking on any resurfacing program, be sure to obtain a hard, tough stone which will endure heavy traffic, otherwise the results will be disappointing.

Bear in mind that this resurfacing has all been done either by departmental forces or by relief forces under departmental supervision. Costs have varied from 30 cents to $1.00, with a fair average at 50 cents, all unit costs being per square yard. These variations are occasioned by the condition of the street to be resurfaced. If a contractor were to submit bids, it would be difficult for him to figure out accurately the average weight of material used per square yard, because of the many surface irregularities. Under the circumstances, he would have to add for his overhead plus a contingent item, plus his profit. On a contract basis, therefore, where these items are taken into consideration there would be an increase in cost of 25 to 35 per cent.

Rain Increases Traffic Accidents

Traffic accidents are on the increase, particularly in all large cities throughout the country. Speed has been mentioned many times as a contributing factor in traffic ac-

cidents. While this contention is undoubtedly true with the ever increasing number of motor cars on city streets, it is difficult to figure out how traffic congestion could be avoided by any substantial reduction in speed. Our accident reports show that during rainy weather there is a decided increase in the number of traffic accidents. Driving a car on wet sheet asphalt streets at a speed in excess of twenty miles an hour is decidedly hazardous. During recent months we have been experimenting with a special mat coat, which has been placed over sheet asphalt streets at hazardous intersections. We have not had an accident at these intersections since the mat coats were installed. In the near future we hope to take one of our newly widened thoroughfares and install a mat coat over a considerable area in order to determine whether this anti-skid surface will enable motor cars to operate at their present speeds, which will facilitate the movement of traffic and at the same time reduce the hazards by providing an anti-skid surface.

It is difficult to work out a satisfactory mix for mat coat work which will not be too expensive and at the same time will provide a rough surface which will endure. After trying numerous mixes we feel that we have at last hit upon something which is effective, economical and durable, but we should prefer to have more service with this mixture before recommending the use elsewhere. One thing is certain: any municipality desiring to curtail traffic accidents should carefully consider ways and means to change the smooth character sheet asphalt paving in order to provide a suitable anti-skid surface.

Shallow-Depth Elevated Tank Increases Pressure and Storage

Rocky Mount, N. C., Installs 1,000,000-Gallon Unit

TO facilitate economical pumping, provide a greater volume of storage at a central point, and increase the static head in the distribution system, the city of Rocky Mount, N. C., recently completed the installation of a 1,000,000-gallon radial cone tank 88 feet in diameter and 100 feet from ground level to the bottom of the tank. The range in head between the upper and lower water levels is only 24½ feet.

Growing Pains

The original water-works system in Rocky Mount was installed in 1898, when the population of the city was only 1,300. The pumping plant, which had a capacity of 125,000 gpd was located on a small creek three miles from town. In 1908 the city outgrew the original system and built a new plant on the Tar River.

THE NEW ROCKY MOUNT ELEVATED WATER TANK

A 148,000-gallon steel standpipe 15 feet in diameter by 110 feet high was built as part of the original water-works system 37 years ago. This old standpipe, which was located in the west part of the city, will be continued in service. The new 1,000,000-gallon tank is in the east portion of the city, and the two are connected by a 20-inch main. In addition to these two tanks, there are two ground-level reservoirs at the pumping plant, with a combined capacity of 2 million gallons.

Besides the new tank and mains, the city is building a new pumping station and filtration plant on the Tar River. The pumping plant will be equipped with new electrically driven pumps with a total capacity of 3.5 mgd. One 2.5 mgd steam-driven pump from the old plant is being retained for standby service. The new filter plant will have gravity type equipment with considerably larger capacity than the pressure filter equipment in the old plant.

The Fire Department uses motorized pumpers, which take water from the distribution system. During fires the pumping rate is increased so as to maintain the storage reserves in the distribution system. The new 1,000,000-gallon elevated tank, however, will supply the maximum draft for five or six hours without further pumping in case of emergency.

The maximum daily consumption of water in Rocky Mount is 1,350,000 gallons, divided equally between domestic and industrial service. There are 4,200 services, 89 per cent of which are domestic.

The new tank was completed by the Chicago Bridge & Iron Works, early in 1935 and since being placed in service "has reduced the operating cost very materially and improved the static head in every part of the city," according to A. S. Lyon, Director of Public Works. William C. Olson is Consulting Engineer for the city.

Resurfacing Old Brick Street with Brick

IN 1892 CLEVELAND LAID A 4-INCH BRICK PAVEMENT ON A SAND CUSHION ON EAST 89TH STREET; IN 1935 IT LAID NEW BRICK ON A GRANULATED SLAG CUSHION OVER THE OLD BRICK

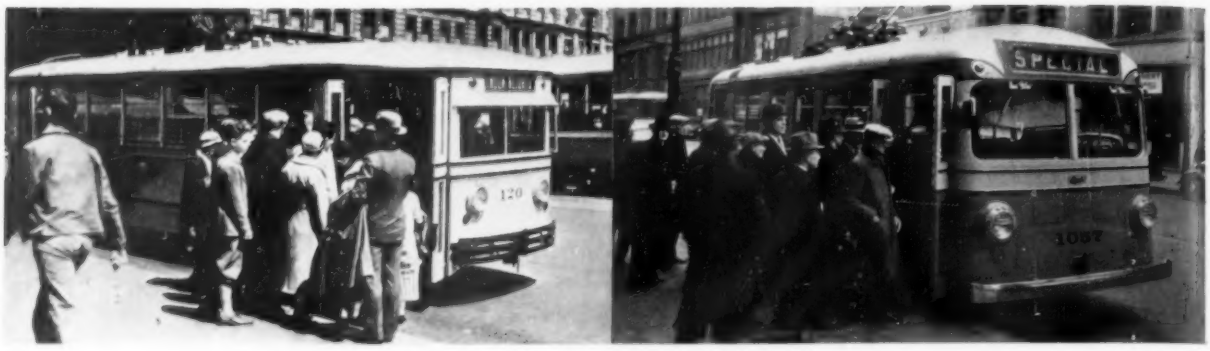
THE OLD PAVEMENT WAS LEFT INTACT EXCEPT AT INTERSECTIONS WHERE THE PAVEMENT HAD TO BE LOWERED TO TAKE CARE OF THE ADDITIONAL THICKNESS OF THE NEW SURFACE

AFTER DROPPING THE 3-INCH BRICK ON THE PREPARED SLAG CUSHION, THE JOINTS WERE FILLED WITH HOT ASPHALT AND THE EXCESS WAS REMOVED, LEAVING A NON-SKID SURFACE

THE COMPLETED BRICK-ON-BRICK RESURFACING PROJECT BETWEEN QUINCY AVENUE AND CEDAR AVENUE ON EAST 89TH STREET

Photographs and data by courtesy of Department of Public Service

The Trolley Coach in Urban Transportation



DAYTON TOLEDO

Bright Modern Coaches Are Good for City, Patrons and Utilities—They Reflect Considerate Management, Responsible Municipal Government and a Peppy City

WHAT has a town council to do with trolley cars and busses—whether they are fast, slow, irregular; successful, exploitive, unpopular, bankrupt?

In only fifteen cities does the municipal government operate street railways or bus lines; but urban transportation is a concern of every municipal government. The Declaration of Independence lists as inalienable rights life, liberty and the pursuit of happiness, and urban transportation affects the first and third of these treasures. The first has to do with safety: Are the electric lines, the cars, the busses, the schedules safe? According to their condition, the vehicles not only affect the comfort or happiness of patrons, but also to a considerable degree advertise the city. Obsolete trolley cars and busses are not good for the inhabitants, their visitors, or the city itself. If the vehicles are in poor condition, so is the management, and so is the municipal government.

On the economic side, the system that is not earning a net income, or that actually is running behind, has few honest friends, which is a situation fraught with danger to all. Bondholders are dissatisfied, but do not know how to get out from under. The rolling-stock will deteriorate in appearance and in service rendered. There will be clashes between management, patrons, newspapers and government. Transportation will become a political issue, which basically and in health it should not be.

Even where the system is efficient and profitable, it is difficult enough to keep it out of politics, because of its intimate relationship with the lives of all citizens. In 1934 the urban systems carried about 11¾ billion passengers, which means that every city dweller used a trolley or a bus an average of 168 times during the year. The condition and appearance of these vehicles, the convenience of the schedules, are of vital concern to all citizens and constitute the transportation problem of every municipality.

It is within the authority of city executives to suggest or permit such changes in the system as are likely to result in its financial or structural betterment without increasing fares or reducing schedules.

One such improvement is the trolley bus or coach, with its curb stop, in place of the trolley car with its track in the middle of the street, its safety islands, and its delays and menace to traffic. The street car has ceased to be the mainstay of the transit industry. In many instances, except in the larger cities, denser and faster traffic and competition with private automobiles have made it uneconomic and an anomaly. Many car lines which ten years ago were profitable are now in the red and—a serious alternative—must be either modernized or replaced. The railway operator is naturally averse to throwing good money after bad by spending large sums on street-car lines which obviously will not return his investment. One answer has been the gasoline bus—saviour of many unprofitable lines. Of the 57,708 vehicles exclusive of subway cars operating in city streets, gas busses numbered 15,854, or about a quarter of the 1934 total. That this answer may not always be the immediate one is suggested by the fact that it blots out practically all of the capital value of the railway company, through the abandonment of electric power capacity, line equipment and rolling stock. On top of this, there must be heavy expenditures for busses and the means for servicing them. Another factor that must be considered is the inevitable loss of the best customer of the electric power generating element of the system. This element frequently furnishes domestic, commercial and industrial power. What effect will this loss have on power costs and rates?

The trolley coach uses the regular overhead trolley wire, is driven by electric motors, but dispenses with the track, and loads at the curb. The power house, pole lines and electric-railway franchise are retained and the visible capital value thereof. The plant keeps its largest customer, each of whose trolley busses is the equivalent of 15 water heaters, 24 ranges, and 40 refrigerators or 693 washing machines, and each bus is in far more continuous use than any household appliance. This heavy annual consumption of 100,000 kwh, moreover, is off-peak load. Finally, the trolley coach is as fixed in its route as the trolley car, with a consequent steadying of realty values on the streets along which it operates. Comfort, size, safety, speed and convenience make this vehicle unquestionably popular with the public the country over. Per-cent increases in patronage following the induction of trolley coaches are reported

The Trolley Coach Is Flexible and Has the Power Plant Back of It

DODGING SNOW IN SALT LAKE CITY

AVOIDING PAVING MATERIALS IN INDIANAPOLIS

MIXED TRAFFIC IN DAYTON

ALL-SERVICE COACH WITH GAS DRIVE, N. J.

HOW THE TROLLEY COACH GETS AROUND OBSTRUCTIONS AND MAINTAINS SCHEDULES

as follows for eight scattered cities: 9 per cent at Chicago; 12-18 at Shreveport; 15-25 at Dayton; 22-51 at Peoria; 25 at Columbus and Indianapolis; 42½ at Newark; 46 per cent at Pawtucket. At Newark, N. J., the restriction inherent in trolley coaches has been removed by equipping them with gasoline drive, so that in addition to serving the streets on which there are trolley wires, they can pull down their trolley rods, step on the gas and, still retaining the better features of electric operation, branch out under their own power. They are now operating on two lines in New Jersey. They are popular. The Union line, operating 7 miles as a gas-electric bus, and 22 miles as a trolley bus, was put into service in substitution for trolleys September 15 last, and to December 1 the volume of passengers increased 30 per cent. On the Camden-Clementon line, volume of traffic has gained 82 per cent. Says the company: "Both lines are making faster time and winning new business."

Indications are that the trackless vehicle is the final means of urban public conveyance. Its motive force will be determined by costs and service. At present it is electric power for trolley coaches, both electric and gas for the all-service coach, and gasoline for busses. Technical improvements will continue to be of perennial announcement; but the riding quality and the appearance should be regarded as constants within the jurisdiction of the sales department. It is the day of large, swift vehicles. Their efficiency as part of an efficient system of local transportation must continually sell public urban transportation to the public. Such efficiency is the only answer to competition by private automobiles. Good bus service keeps many a private car in its garage. The municipal government can cooperate to advantage with the utilities in providing this service—forcing it where its value is not perceived, urging and facilitating it where the utility is responsive, doing nothing to block it where the operators are aggressively desirous of building and maintaining a modern service that attracts all the customers there are.

City Finances: 1934

THE accompanying summary of the financial statistics of the 94 cities having a population of over 100,000 for the fiscal year 1934 has been released by Director William L. Austin, Bureau of the Census, Department of Commerce.

Expenditures.—Of the total governmental-cost payments amounting to $2,522,520 for the 94 cities, 69.2 per cent was spent for operation and maintenance of general departments; 4.8 per cent for operation and maintenance of public service enterprises, such as water-supply systems, docks, and markets; 14 per cent for interest on debt; and 12.1 per cent for capital outlays.

Revenue Receipts.—The total revenue receipts of the 94 cities for 1934 were $2,711,004,655. Of this amount, 64.4 per cent was required for operation and maintenance of general departments; 4.4 per cent for operation and maintenance of public service enterprises; 13 per cent for interest on debt. This left 18.2 per cent of revenues available for capital outlays and reduction of debt or other purposes.

Indebtedness.—While there was an increase of $22,230,985 in the net indebtedness of the 94 cities as a whole, 50 individual cities showed a decrease in their net debt.

Assessed Valuations and Tax Levies.—The assessed valuation of property subject to the general property tax for city purposes for 1934 was $57,292,012,417. This is 3 billion dollars less than the assessed valuation reported for the same cities for 1933.

The levies reported for the city government (city corporations and independent divisions) amounted in 1934 to $1,656,950,107 as compared with $1,703,849,197 in 1933, a decrease of almost 47 million dollars.

Independent Divisions.—These statistics cover the government of the city corporation proper and also independent districts practically coextensive with the cities. They also include a per cent of the financial transactions, debt and tax levies of the county governments for cities having over 300,000 population, in order that data for such cities may be comparable with those for other cities in this class in which the ordinary county functions are performed by the city government.

Table 1. - PAYMENTS FOR OPERATION AND MAINTENANCE OF GENERAL DEPARTMENTS: 1934

Department	Total (000 omitted)	Per capita	Per cent
All general departments	$1,744,975	$46.48	100.0
General government	135,766	3.62	7.8
Protection to person and property	298,758	7.96	17.1
Health and sanitation	134,249	3.58	7.7
Highways	111,306	2.97	6.4
Charities, hospitals, and corrections	345,261	9.20	19.8
Education	547,135	14.57	31.4
Recreation	48,306	1.29	2.8
Miscellaneous	124,194	3.31	7.1

Table 2. - REVENUE RECEIPTS: 1934

Source of revenue	Total (000 omitted)	Per capita	Per cent
All revenues	$2,711,005	$72.21	100.0
General property taxes	1,697,903	45.22	62.6
Special property and other special taxes	21,100	0.56	0.8
Poll taxes	2,140	0.06	0.1
License taxes	*118,237	3.15	4.4
Special assessments	60,617	1.61	2.2
Fines, forfeits, and escheats	8,022	0.21	0.3
Subventions, donations & pension assessments	364,936	9.72	13.5
Interest, rents, and highway privileges	104,893	2.79	3.9
Earnings of general departments	66,724	1.78	2.5
Earnings of public service enterprises	266,433	7.10	9.8

* Includes $28,610,000 from alcoholic beverage permits.

Table 3. - PER CAPITA REVENUE RECEIPTS; OPERATION, MAINTENANCE, AND INTEREST; LEVIES OF THE GENERAL PROPERTY TAX; AND NET DEBT, BY CITIES: 1933 AND 1934

(The per capitas for 1933 are based on the estimated population as of the middle of the fiscal year of each city reported; those for 1934, on the estimated population as of July 1, 1933, no later estimates having been made.)

Group and city	Per capita revenue receipts		Per capita costs of operation, maintenance, and interest		Per capita levies of the general property tax#		Per capita net debt	
	1934	1933	1934	1933	1934	1933	1934	1933
Grand total	$72.21	$66.88	$59.08	$58.62	$44.13	$45.46	$169.94	$169.70
Group I	84.12	77.42	68.83	68.02	51.25	53.04	201.54	201.45
Group II	72.71	65.48	58.84	56.85	43.17	44.19	157.98	158.43
Group III	48.53	46.79	39.99	40.97	30.61	31.12	113.33	112.48
Group I. Cities of 500,000 and over:								
New York, N. Y.	$112.24	$93.31	$88.42	$85.84	$65.85	$63.66	$260.71	$256.57
Chicago, Ill.	82.94	61.45	65.62	50.12	43.97	50.35	127.52	134.05
Philadelphia, Pa.	61.10	63.43	54.08	54.49	40.63	47.13	233.65	238.27
Detroit, Mich.	68.39	67.59	61.86	56.58	39.98	40.67	193.69	194.10
Los Angeles, Calif.	87.18	83.37	70.56	70.96	38.95	47.41	172.48	167.89
Cleveland, Ohio	69.46	61.80	60.37	58.56	*33.81	*35.05	157.56	161.53
St. Louis, Mo.	50.08	52.85	44.34	43.71	33.79	38.39	94.07	87.36
Baltimore, Md.	65.18	65.06	53.11	50.21	35.19	36.98	200.98	205.19
Boston, Mass.	97.97	94.52	89.01	91.19	78.98	72.04	170.49	175.72
Pittsburgh, Pa.	69.09	67.19	62.20	59.73	61.69	64.31	205.91	198.91
San Francisco, Calif.	78.74	77.45	69.23	69.72	40.52	48.63	246.86	248.01
Milwaukee, Wis.	88.01	77.17	68.88	62.44	51.06	50.34	110.57	117.85
Buffalo, N. Y.	80.41	80.89	83.50	84.45	52.27	47.63	202.28	192.95
Group II. Cities of 300,000 to 500,000:								
Washington, D. C.	$91.53	$84.06	$71.37	$67.18	$42.27	$49.20	-	-
Minneapolis, Minn.	68.24	55.80	58.18	48.55	49.08	44.79	$112.92	$108.25
New Orleans, La.	55.53	51.15	40.49	38.89	31.22	33.25	170.33	175.15
Cincinnati, Ohio	82.80	85.12	66.97	62.89	*27.54	*35.21	164.91	172.44
Newark, N. J.	107.53	72.66	79.21	77.08	62.96	56.56	275.92	272.27
Kansas City, Mo.	52.82	51.63	43.47	46.35	42.87	44.60	150.61	151.41
Seattle, Wash.	91.89	88.87	69.63	69.04	32.81	39.42	246.90	240.45
Indianapolis, Ind.	47.29	48.24	37.95	40.35	31.86	39.27	80.77	86.21
Rochester, N. Y.	94.62	85.51	87.00	76.77	63.57	55.20	198.11	189.77
Jersey City, N. J.	78.97	73.73	80.83	82.16	73.33	65.80	245.90	245.59
Houston, Tex.	47.38	44.43	34.73	33.79	33.57	35.86	166.73	169.60
Louisville, Ky.	46.28	41.68	39.56	38.58	33.36	31.19	104.61	104.80
Portland, Oreg.	57.31	69.31	50.20	56.08	41.58	46.37	187.23	194.65
Group III. Cities of 100,000 to 300,000:								
Columbus, Ohio	$41.80	$45.62	$35.10	$40.77	*$16.25	*$15.81	$99.53	$92.53
Toledo, Ohio	42.88	41.72	34.84	41.89	*22.03	*26.42	119.83	129.86
Oakland, Calif.	58.34	54.89	46.86	47.79	29.48	32.38	192.05	198.27
Denver, Colo.	57.94	57.02	50.51	51.07	36.05	36.85	111.48	110.32
Atlanta, Ga.	34.84	32.59	30.60	28.91	18.62	18.19	45.42	47.63
Dallas, Tex.	35.19	39.40	27.54	32.92	21.70	25.37	128.79	132.12
St. Paul, Minn.	45.32	42.82	36.70	38.14	32.74	31.26	108.64	105.59
Birmingham, Ala.	25.66	24.35	19.95	20.12	10.58	11.78	68.18	72.00
Akron, Ohio	41.12	38.11	32.98	33.90	*19.48	*21.13	148.57	146.14
Memphis, Tenn.	35.58	30.88	25.81	25.22	22.78	22.62	99.77	101.50
Providence, R. I.	53.68	70.19	56.20	61.07	47.03	47.22	171.06	170.99
San Antonio, Tex.	31.36	30.76	21.69	22.64	24.01	25.68	110.30	116.97
Omaha, Nebr.	55.21	51.18	40.90	42.42	31.39	31.90	110.01	123.08
Syracuse, N. Y.	76.47	64.65	64.08	59.73	43.57	32.91	160.87	154.73
Dayton, Ohio	41.49	44.81	30.97	37.82	*20.22	*26.71	99.43	101.73
Oklahoma City, Okla.	38.02	44.66	24.61	27.25	20.84	22.05	80.93	89.41
Worcester, Mass.	69.77	70.84	59.18	57.88	45.40	48.44	58.15	55.27
Richmond, Va.	53.90	51.28	44.65	46.55	31.48	31.47	142.04	148.47
Youngstown, Ohio	44.12	40.01	37.06	38.34	*21.44	*26.92	55.78	50.68
Grand Rapids, Mich.	41.59	45.94	35.03	44.60	28.38	32.51	74.57	76.82
Fort Worth, Tex.	36.90	35.16	31.40	30.41	27.91	28.53	135.33	136.42
Hartford, Conn.	71.27	73.47	60.93	62.33	53.83	56.26	143.41	124.74
Flint, Mich.	45.21	48.87	40.42	33.01	27.05	33.39	98.21	102.15
New Haven, Conn.	63.12	62.65	50.46	53.45	50.27	44.36	93.64	99.23
San Diego, Calif.	48.58	49.61	34.51	41.37	25.51	27.86	134.50	126.09
Long Beach, Calif.	53.05	56.32	50.35	52.42	32.52	29.03	150.75	150.51
Nashville, Tenn.	35.44	37.23	28.38	27.85	22.35	22.35	106.23	90.89
Springfield, Mass.	77.87	73.13	64.33	68.57	51.36	52.35	111.83	118.60
Tulsa, Okla.	46.39	42.51	29.66	33.47	32.16	36.59	125.96	138.34
Bridgeport, Conn.	57.46	52.89	57.64	55.58	44.91	46.87	104.21	98.54
Des Moines, Iowa	44.48	39.65	36.30	39.61	35.99	38.54	122.09	120.22
Scranton, Pa.	38.04	40.30	34.63	36.96	32.14	33.17	59.80	60.18
Salt Lake City, Utah	38.88	35.58	33.42	32.04	24.22	24.24	86.86	86.03
Yonkers, N. Y.	106.78	90.96	82.52	85.73	69.31	69.49	237.19	195.28
Paterson, N. J.	64.04	52.62	57.13	53.34	40.56	34.69	235.01	202.89
Jacksonville, Fla.	51.99	49.14	42.50	41.97	20.24	16.81	103.05	106.15
Albany, N. Y.	79.96	72.79	68.28	62.37	50.09	51.05	219.05	215.08
Norfolk, Va.	66.14	51.15	49.64	42.80	36.45	37.72	239.25	245.04
Trenton, N. J.	53.59	51.74	48.83	54.53	38.27	33.34	131.67	134.75
Chattanooga, Tenn.	27.84	25.54	25.41	24.73	16.97	17.00	106.46	108.25
Kansas City, Kans.	55.37	56.49	35.10	39.43	27.26	28.81	76.13	79.98
Fort Wayne, Ind.	36.24	33.08	30.01	30.84	20.10	18.87	48.14	51.02
Camden, N. J.	41.73	43.20	43.34	45.22	36.30	36.30	155.91	124.98
Erie, Pa.	39.28	35.96	32.30	33.30	30.37	32.93	106.98	104.07
Elizabeth, N. J.	46.54	53.13	47.94	51.38	36.50	33.93	143.79	104.18
Wichita, Kans.	30.92	38.62	27.32	27.54	26.98	23.20	64.66	52.70
Spokane, Wash.	35.31	32.04	26.38	28.18	17.88	18.15	33.66	37.74
Fall River, Mass.	50.15	48.44	39.04	39.39	37.44	36.33	60.89	70.91
Cambridge, Mass.	70.17	68.18	59.20	60.23	57.23	51.51	77.38	82.93
New Bedford, Mass.	49.88	52.82	43.22	44.73	38.11	38.18	74.88	86.57
Reading, Pa.	39.26	40.43	33.88	33.78	31.97	32.21	117.17	91.40
Knoxville, Tenn.	35.70	36.33	34.06	34.62	27.71	27.12	196.89	198.02
Peoria, Ill.	37.80	34.76	27.08	27.73	27.48	27.83	30.20	32.71
South Bend, Ind.	30.57	27.34	25.60	24.76	20.22	21.58	54.89	56.33
Tacoma, Wash.	56.51	51.80	40.72	42.35	17.56	19.10	137.01	145.33
Miami, Fla.	57.68	44.68	51.01	32.36	30.97	29.01	238.77	248.77
Gary, Ind.	28.59	28.19	25.57	26.39	22.85	22.17	53.92	55.11
Canton, Ohio	37.21	31.61	31.60	30.51	*14.76	*19.52	87.52	89.98
Wilmington, Del.	42.81	57.51	37.67	39.10	23.72	23.74	121.21	125.48
Tampa, Fla.	42.77	36.63	33.04	33.94	32.35	35.12	150.76	149.57
Somerville, Mass.	51.51	47.85	47.67	43.54	38.87	34.79	37.49	35.09
El Paso, Tex.	27.26	29.49	21.35	23.69	20.56	21.72	74.55	77.80
Evansville, Ind.	30.89	26.30	24.98	25.16	17.79	21.06	42.20	44.94
Lynn, Mass.	58.73	56.39	51.72	52.72	43.34	42.66	64.95	64.50
Utica, N. Y.	63.09	52.79	53.54	50.19	41.27	32.57	119.32	117.36
Duluth, Minn.	61.20	54.48	44.40	42.29	39.91	42.90	112.50	114.54
Waterbury, Conn.	64.54	56.17	55.39	51.32	49.68	52.70	156.38	160.04
Lowell, Mass.	51.08	46.03	46.50	45.90	40.15	40.08	42.63	44.93

#Exclusive of levies on personal property in Ohio cities.
*Exclusive of levies on personal property.

"Limited Motorways," or "Freeways"

By **FREDERICK P. CLARK**
Associate Consultant,
New England Regional Planning Commission

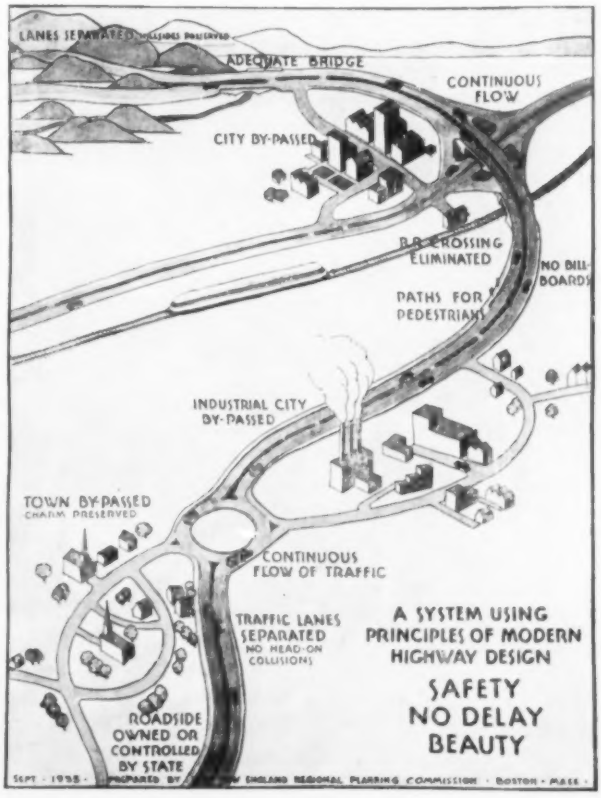
HIGHWAY circulation is one of the most important parts of any planning program. The well-being of an area depends greatly upon the facility with which its inhabitants may get from one place to another. With the development of the automobile, there is today a twofold problem in facilitating the flow of highway traffic. There is the movement of local traffic; but added to that is the complication of an intermingling movement, caused by long-distance traffic.

In practically every town and city the problem of motor traffic is a serious one. It is continually becoming necessary to widen and straighten local streets to accommodate the through-traffic. But these same communities are finding more and more that this does not solve their problem. Taking care of the through-traffic is costly, and all the while traffic is being forced through places where it neither belongs nor desires to go. The toll of persons killed and injured is a deplorable sacrifice to this needless congestion. It is most necessary that the problem be studied rationally and a solution be reached, not on the basis of what always has been done, but of what ought to be and reasonably could be done.

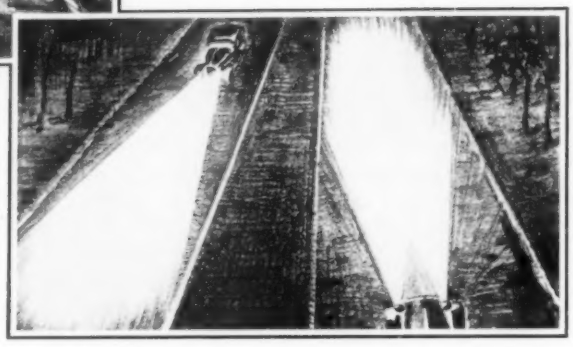
A traffic check made last year under the jurisdiction of the State Department of Motor Vehicles of Connecticut shows that on the Boston Post Road in Greenwich, near the New York State line, only 20 per cent of the traffic was local; that is, vehicles having local origin as well as local destination. Over 60 per cent was of out-of-state registration. A similar check on the Boston Post Road at Milford, Conn., showed that less than 8 per cent was local and over 35 per cent was of out-of-state registration. A survey of traffic on New Hampshire's primary highway system, made in 1926, showed that over 50 per cent of the total passenger-car traffic was of out-of-state registration, and one highway had as high as 75 per cent of out-of-state cars. Traffic surveys in other states will probably show similar proportions of out-of-state cars.

Nearly every local traffic check will likely show that most of the congestion is caused by through-traffic. It seems quite logical that instead of destroying local property and enlarging highway facilities far beyond local needs it would be much better to separate local and through traffic by providing new through-routes on open land *near* cities and towns and not through them. The present highway system would remain and handle local and short-distance distribution of traffic.

Such a separation has many advantages. The charm and attractiveness of villages would be saved. The value of this protection of villages from destruction caused by heavy motor traffic forced through main streets cannot be over-emphasized. In addition, local business would be aided, because local people would have a chance to get down town and park their cars. There is the further advantage of reducing maintenance costs of local highway systems. If local routes could be reasonably free from



Blinding lights of approaching traffic a constant menace at night—a cause of serious head-on collisions and pedestrian accidents.



Divided roadway removes approaching traffic from direct rays of bright lights. Also lessens the nervous tension and fatigue of night driving.

heavy through-traffic, for which they were not designed, there is no doubt that a great saving would result.

Design of Through-Routes

A study of the needs and requirements of through-routes indicates that their design must provide for speedy and uninterrupted flow. Since they must serve a long-distance type of traffic, the continual stopping for traffic lights and unregulated cross-traffic that we have today on through-routes must be eliminated. A highway may be wide enough for several lanes of traffic, but if the traffic must halt at every stop light and slow down at every intersection, a wide highway is of little use.

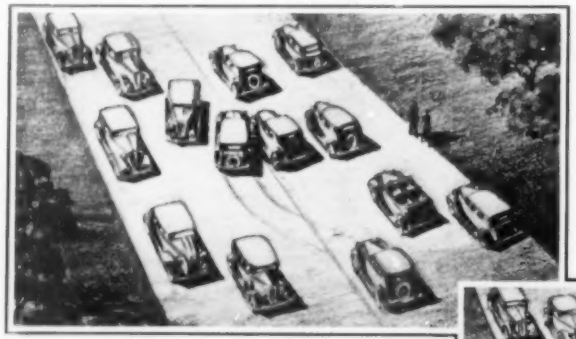
The U. S. Bureau of Public Roads has the following to say in the report, "Model State Enabling Act Empowering State Highway Departments to Construct and Maintain Freeways and Parkways," prepared by the Bureau for the New England Regional Planning Commission:

"The need for specialized express types of highways is now generally recognized, particularly in the more populous sections of the country. . . . From the Federal point of view, the broad interpretation of the oft-quoted phrase, 'the public safety and the general welfare,' is quite sufficient to permit the construction of special highways of the express-way type at the present time. . . . Adherence to the system of highways as now planned is by no means the final step of highway development. Continued studies are needed with respect to the segregation of types of traffic and the most efficient type of highway to build to serve that traffic."

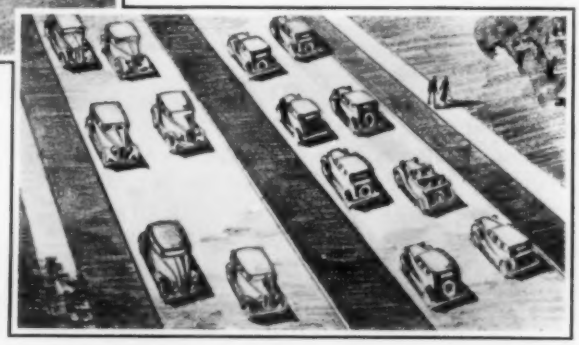
To provide for the necessary safe, speedy and uninterrupted flow, routes of "freeway" or "limited way" type of design are necessary. Such design incorporates the following features:

1. Separation of opposing lines of traffic by a center park strip.

2. Grade-separation or rotary-traffic design of intersections.

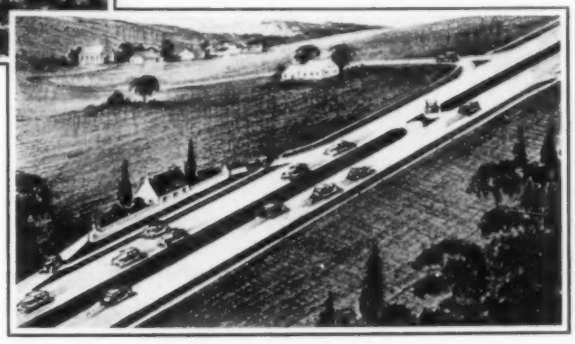


Driver trying to "beat the line of traffic" is unable to find an opening and is caught between the opposing lines of traffic.



Separation of opposing lines of traffic eliminates "beating the traffic line."

A typical development along our main highways today. Movement of cars into and from gas stations and stands greatly reduces capacity as well as safety of the highway.



Control of border land and its uses excludes unnecessary gas stations, roadside stands and private access. —Capacity of highway increased 200%-300%.

3. Control of the border land by the State Highway Department to prevent access of vehicles except at properly located and designed entrances.

4. Provision for pedestrian paths along the highway and over bridges where justified by pedestrian traffic.

5. Proper curves, banking and visibility for fast-moving traffic.

Once a highway of the "limited way" type has been properly constructed, the question of highway safety and traffic flow efficiency has been solved so far as it is possible to do so by engineering known today.

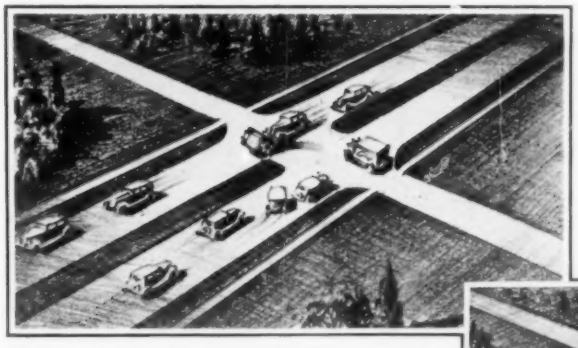
Advantages of Limited Motorway Design

Limited Motorways Are Safer.—The U. S. Bureau of Public Roads states in the publication referred to above that

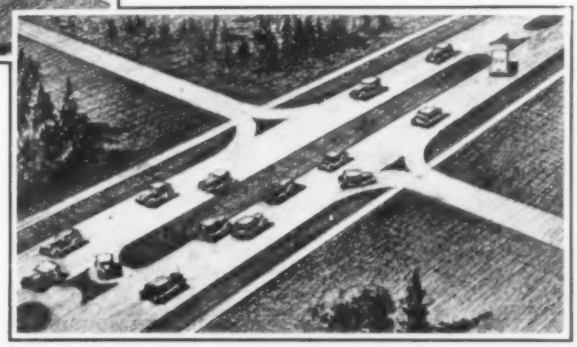
". . . The human element is one of the major factors that must be kept constantly in mind when planning express ways. Rules and laws are poor remedies for bad conditions. Modern highways should be designed to reduce to the minimum inevitable human error, carelessness and recklessness, which are responsible for most motor-car accidents. . . ."

A study of the causes of accidents, using compilations made by the National Safety Council and several of the State Highway Departments of New England, shows that from one-half to two-thirds of all accidents between motor vehicles would be eliminated by "limited way" design, *because they would never have a chance to happen.*

Every accident costs money. The Travelers Insurance Company of Hartford, Conn., has estimated that in 1931 the total economic loss due to automobile accidents in the United States was $2,500,000,000. This figure covers property damage, wage loss, medical expense, and overhead insurance costs.



Allowing side-road traffic to proceed directly across main highway is a cause of many accidents.



Use of rotary movement around center island eliminates direct cross-traffic and reduces accidents.

The 1931 figure amounts to five times the country's average yearly fire loss and is a per capita cost of $20. Economic loss from auto accidents today is undoubtedly just as serious. Anything that we can do to reduce accidents, therefore, will be extremely profitable. A system of limited motorways would eliminate a large percentage of accidents and consequently would pay for itself in a short period of years.

Limited Motorways are More Efficient.—Congestion is one of our most serious highway problems, and attempts to relieve it by widening the highway pavement have failed in most cases adequately to solve the problem. It is the movement of cars onto and off the highway that reduces the capacity in the majority of cases, not lack of pavement width. The greatest recorded flow of traffic New England's highways have ever known was 4,856 cars in one hour on the four-lane Fellsway in Medford, Mass., just outside Boston, in August, 1933. This heavy traffic produced a very congested situation. The same amount of traffic could have been accommodated on a four-lane limited motorway easily and with no congestion.

Limited Motorways are Pleasanter to Drive On.—The lining of highways with billboards, gas stations, hot-dog stands and other types of commercial development too numerous to mention has reduced our highways in many places to what some people have called "highway slums." No one disputes the necessity of some roadside services. However, they should be limited to a necessary number, and those permitted should have an acceptable appearance. Also location and appearance of roadside services should be such that the attention of a driver is not distracted from his job of driving.

It is almost impossible to control roadside development along our highways today. It *is* possible to do so along limited motorways, for the State Highway Department controls the land bordering the highway and has authority to permit only such services as are necessary, and to see that their location and design fit in with the highway. Driving along a route of limited motorway design is a pleasure.

Limited Motorways Are More Economical.—"Can we afford to build that type of highway and on new right-of-way?" many people will surely ask. The question should be reversed: "Can we afford not to build that type?"

Major Gilmore Clarke, Consultant to the Westchester County Park Commission, says, regarding their experience in Westchester County: "I have said that we can save money by building new roads for through-traffic instead of widening old ones. A comparison between the cost of widening the Boston Post Road in Westchester County and that of constructing a parallel parkway a short distance away, but serving the same territory, should prove my point. In 1929 it was estimated that the cost to widen the Boston Post Road from 66 to 166 feet would have been over one million dollars a mile for the land alone, whereas to purchase lands for the Hutchinson River Parkway, having an average width of 500 feet, cost an average of $264,000 a mile.

"A still better example may be cited in the case of the Albany Post Road in the same county. To widen the Albany Post Road in 1929 from 66 to 166 feet was estimated to cost $792,000 per mile. Lands for the Saw Mill River Parkway, averaging 500 feet in width and paralleling the Albany Post Road at a distance varying from one to two miles, cost at the rate of $138,600 per mile. In other words, the cost to have widened the Albany Post Road would have been six times the entire cost of a 500-foot parkway."

In addition to savings in land costs, limited motorway design has the economy brought about by accommodating more traffic per lane of pavement. There is also the great indirect saving due to reduced accidents and consequent reduction in property damage, medical expense, wage losses, and insurance rates.

The Use of Limited Motorway Design

From the above it is evident that limited motorway design has definite advantages of safety, efficiency, appearance and economy. Recent public reaction to the mounting toll of highway accidents and fatalities indicates that we must decide whether our automobiles are to be designed and regulated to fit existing highways, or whether our highways are to be designed to accommodate the performance of modern automobiles. Without question, the latter should be our course.

Limited motorway design is not a "cure-all" for highway troubles, but its use on all new major highway development will go a long way toward solving our highway problems.

Some Principles in a System of Just Taxation

IN his new book, "Public Finance" (reviewed briefly on page 93 last month), Professor Clyde L. King of the University of Pennsylvania suggests the following as fourteen principles in a system of just taxation:

1. Revenues from taxes should be adequate to meet essential public services.
2. Taxes should be levied in proportion to ability to pay.
3. As far as possible, the processes of production should be freed from the burdens of taxation.
4. The tax paid should come more largely from income than from capital.
5. Taxes should be equitably distributed as between city and country, and as between industries and individuals.
6. Taxes should be so chosen and levied as to keep the cost of collection as low as is consistent with equity.
7. Taxes should be so chosen and levied as to take out of the pockets of the people as little as possible over the amounts brought into the public treasury.
8. Government benefits and services when specific and direct should be paid for directly by those receiving such benefits.
9. Burdensome duplication of taxes as between states, cities, local governments, and the nation should be avoided.
10. The tax system should be sufficiently diverse and elastic to meet sudden shifts in public need or in industrial conditions.
11. Equity requires consideration as to whether taxes are shifted to others by those who first pay them.
12. The amount of tax due should be clear, and the time and method of payment convenient to the taxpayer.
13. The social end to be attained by the tax must be considered in choosing the kind of taxes to be levied.
14. Taxes should be so chosen and spent as to further national development and to enhance the social income.

Fighting a 23-Inch Snowfall

Organization, Personnel and Equipment for Snow Removal in Portland, Maine

By EDWARD M. HUNT
Commissioner of Public Works

PORTLAND has an area of about 22 square miles and a population of about 72,000. There are several islands within the city limits. The area of the mainland, not including the islands, is about 18 square miles. The total length of streets upon which the city handles snow and ice is about 170 miles, including 10 miles of streets on the islands.

The streets vary in character from paved roadways with paved sidewalks in the compactly built up areas of the city, to country roads with earth sidewalks, or with no sidewalks, in the suburban areas. On about 164 miles of streets snow is removed from the roadways by displacement plowing. On about 6 miles of roadways, in the compactly built sections of the city, where the traffic is heaviest, snow is removed from the roadways by loading it into trucks and hauling it away. The snow is disposed of by dumping it into the waters of the harbor at convenient places. In this work it is an advantage to be situated as Portland is, where there is generally open sea water.

Care of Icy Sidewalks

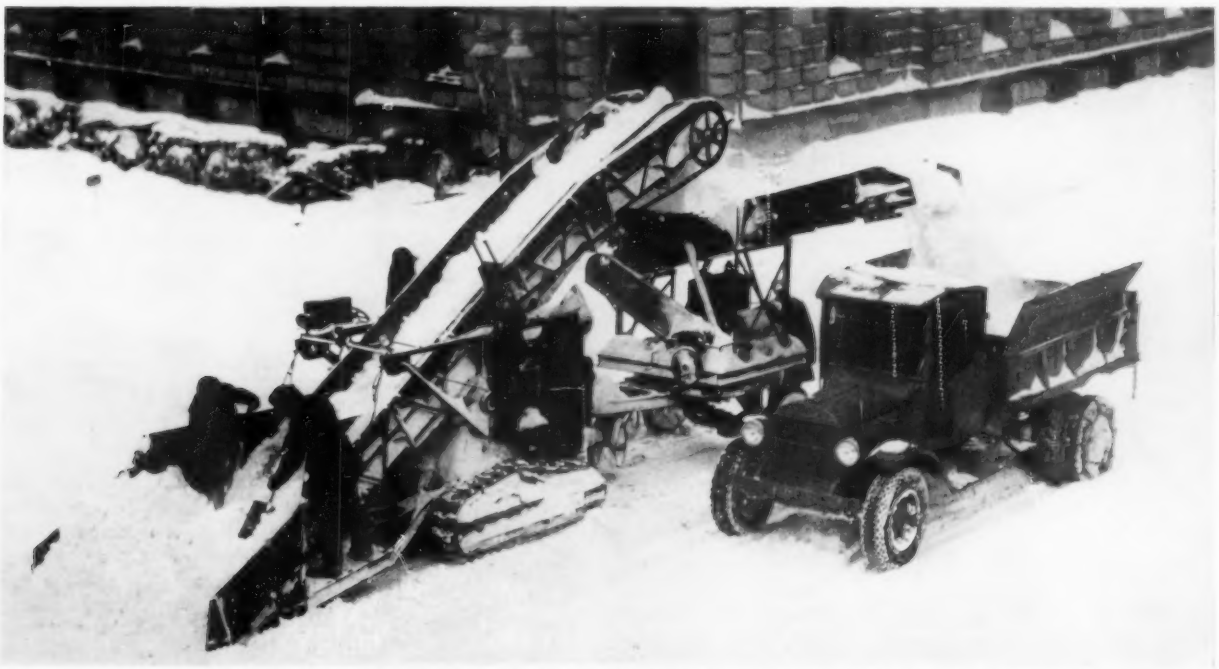
The city ordinances of Portland require the person responsible for any building or lot of land bordering on any public way where there is a sidewalk, to remove the snow from the sidewalk within a certain time after a snowfall has ceased. The ordinances also require the person responsible for any such building or lot of land to remove ice from the adjoining sidewalk or to make it safe by covering the ice with sand or other suitable substance.

In the compactly built up parts of the city where there are paved sidewalks, people comply with the ordinance fairly well. Winter weather in Portland is such that rains or thaws are sometimes quickly followed by temperatures much below freezing, so that icy sidewalks are quite prevalent. The city assists in the compactly built sections by sanding icy sidewalks on the most heavily traveled streets where it may be considered a general public service.

When icy conditions occur, trucks loaded with sand, to which about 100 pounds of salt are added to each cubic yard of sand, are sent to certain predetermined districts. Two men, in addition to the truck operator, accompany each truck and scatter the sand on the icy sidewalks by hand. Mechanical means of applying the sand have been tried but found to be less satisfactory than the hand method, especially when the sidewalks are being used by people walking. The city further assists by delivering sand, without charge, to people who wish to have it on hand to apply to the sidewalks when they are icy.

Plowing Sidewalks

In the suburban areas there are earth footpaths along the street, instead of paved sidewalks. There are long frontages of farm land or unimproved land along some of the suburban streets. It would be unreasonable to expect the owners to remove the snow from the sidewalks adjoining such long frontages. In such areas the city assists by clearing the sidewalks by means of sidewalk plows. Ten of these plows are used, each drawn by one or more



SNOW LOADER WITH SIDE DELIVERY TRAILER, PERMITTING RAPID SPOTTING OF TRUCKS WITHOUT BACKING

THIS SNOW BANK WAS LOADED BY THE SNOW LOADER

horses, according to the depth of the snow and the difficulty of drawing the plows. The area in which sidewalks are plowed is divided into ten routes, one for each plow. All sidewalk plows start as soon as possible after a snowstorm is over, and break out footpaths on the earth sidewalks.

Snow-Handling Equipment

The Portland Department of Public Works owns the following snow-handling equipment:

1 10-ton Caterpillar tractor with Sargent V plow
2 5-ton Cletrac tractors with Sargent V plows
1 3½-ton Caterpillar tractor with Sargent V plow
1 5-ton McCormick-Deering wheel tractor with a Champion snow blade
1 3-ton McCormick-Deering wheel tractor with Baker snow blade
2 8-ton Caterpillar motor graders with V plows, snow blades and ice scarifiers
1 3½-ton FWD truck with Sargent V plow
1 2½- to 3-ton White truck with Sargent V plow
1 2½- to 3-ton International truck with Sargent V plow
3 2½- to 3-ton Mack trucks with Champion blade plows and Sargent V plows
2 2½- to 3-ton Diamond T trucks with Champion blade plows and Sargent V plows
1 2-ton Diamond T truck with Champion blade plow
1 2-ton GMC truck with Sargent blade plow
3 1½-ton Ford trucks equipped with Sargent blade plows
1 1½-ton International truck with Sargent blade plow
1 1½-ton Federal truck with Sargent blade plow
2 Barber-Greene snow loaders
2 Barber-Greene side delivery snow trailers.

The V plow has a nose shaped like a letter V and throws the snow to both sides of the plowed area. The blade plow is a straight moldboard, set obliquely to the line of travel, and throws the snow to only one side of the plowed area. Blade plows remove snow more cleanly from the roadway surface than V plows, and with ordinary snowfalls of light to medium weight snow will clear roadways more rapidly than V plows. After the first cut, a V plow can clear only one-half its width at each cut, while a blade plow can clear its whole width if the snow is not too heavy. On the other hand, V plows will penetrate and move deep, hard-packed snow banks that cannot be moved with blade plows.

For loading snow into trucks the city has two snow loaders and two side-delivery snow trailers. After the snow has been plowed into ridges or long mounds at the side of the roadway, the snow loader, which is self-propelling by means of crawler tracks, scoops up the snow and elevates it by means of a belt conveyor and chutes it into the hopper of the snow trailer, which is attached to and towed by the snow loader. The snow trailer has a belt conveyor, actuated by a separate engine, which conveys the snow from the hopper to one side and chutes it into the trucks. Without the trailer, the trucks would have to turn and back under the loader chute. With the trailer, the trucks move forward in the same direction as the loader while being loaded, and the trucks do not have to turn and back. Experience has shown that the snow trailer increases the output of the snow loader by about 50 per cent.

In addition to the use of mechanical snow loaders, men are hired to shovel snow into trucks by hand. This is done in order to clean up the snowfall as quickly as possible and because some streets are too narrow to permit the use of mechanical loaders, and in order to afford employment to men.

As the trucks owned by the city are all used for snowplowing, hired trucks are used to haul away the snow from the mechanical loaders and the hand loaders. Dump-trucks are preferred and are available with bodies ranging in capacity from 2 to 10 cubic yards when heaped with snow. Trucks with stationary bodies are sometimes hired for hand loading when dump-trucks are not available.

Work Continuous During a Storm

When the snow-handling equipment goes to work to clear up a snowstorm, it works continuously, except for oiling, greasing and repairs, until the snowfall is cleaned up. In the case of a snowfall of ordinary consistency and 6 to 10 inches in depth, 36 to 48 hours of continuous operation may be required. To attend to this work, there are two shifts of operators for each piece of equipment, and two shifts of foremen to direct the crews employed in connection with the equipment. The first shift is made up of the regular operators and foremen who are steadily employed. The second shift is made up of men who are regularly employed in less important capacities but who are trained as spare operators and foremen.

(*To be continued in the February issue*)

School of Architecture, N. Y. U., Expands Its Planning Work

THE School of Architecture of New York University has been conducting courses in housing and community planning to meet the needs of architects, engineers and others interested as technicians or social service workers in the fields of housing and planning. In addition to the course in Community Planning which is now being conducted under the direction of Dr. Carol Aronovici, a new course in Survey Methods will be inaugurated next term. This course will deal with the various forms of survey-making in relation to the improvement of communities. Training in the methods of outlining surveys, selection of fields of study, the preparation of a survey record, the evaluation of information, the classification and tabulation of facts and the interpretation of the results in report form will constitute the subject matter of the course. Students desiring to carry on special investigations or research will be given opportunities to do so under direction and in accordance with their particular interests and needs.

This training course is particularly designed to meet the needs of persons interested in specific projects of community improvement, such as housing, recreation facilities, the location of public improvements, the development of public services, the relation of neighborhood needs to community facilities, and other problems bearing on the living, working and recreational conditions and their improvement. The course is under the direction of Dr. Aronovici, who has made a large number of community surveys and is the author of a standard textbook on "The Social Survey" and other books and articles dealing with survey methods. A number of experts in the field of survey will participate in this course.

TVA Replans a Town

By **EARLE S. DRAPER**
Director of Land Planning and Housing,
Tennessee Valley Authority

NORRIS DAM, now nearing completion by the Tennessee Valley Authority, will form a lake or reservoir having an irregular shore line more than 700 miles in length and covering an area of 83 square miles. The inundation of such an extensive area of long-settled land involves many problems other than those of hydrodynamics alone. An interesting example of this non-engineering phase of the problem is illustrated by the replanning of the village of Caryville, Tenn., which lies on the margin of the area to be flooded by the new Norris reservoir.

Caryville is an unincorporated village with a population of about 1,100 people, most of whom are dependent on nearby coal mining for livelihood. The village contains 239 houses and 28 stores, etc. Based on the normal high-water level of the reservoir, about 200 acres of the townsite will be flooded, involving the sites of 50 houses and 3 stores. On a basis of maximum long-time flood crests, however, it was found to be advisable to remove an additional 23 houses and a 9-room brick school building.

In the replanning of Caryville the Authority made no attempt to dictate means or methods. Practical conditions pertaining to resettlement of the people who were affected governed the approach to the problem. Emphasis throughout has been given that the project is a direct responsibility of the community.

Thus, the Caryville Committee is composed exclusively of local residents, and the TVA's role has been that of a technical consultant and friendly advisor. This does not mean that the Authority has adopted a merely cursory and passive interest in the project, but it does mean that the Committee has not been a mere instrument for the promotion of TVA ideas.

From the preliminary arousing of community interest and participation down to the multitudinous negotiations leading to the final adjustment and harmonizing of private and community interests, the Caryville Committee has handled all direct contacts with the people of the community. Such things as acquiring rights-of-way for new roads, the readjustment of property lines, agreements as to new school or church sites and so on, are of course more easily adjusted by local people than through intervention by outsiders.

Adjusting Policies to Needs

In order to explore all the possibilities, early consideration was given to the possible removal of the entire town and its rebuilding elsewhere. Studies and surveys by the Division of Land Planning and Housing, the Industrial Division, and the Social and Economic Division, showed that Caryville is not a stranded community. For instance, it was estimated that the adjacent coal reserves are sufficient to permit 100 years' working at the present rate of output. Also, it was estimated that the expense of community re-

location would amount to about $1,500,000. Furthermore, a large percentage of the townspeople preferred to remain where they were. Therefore, it became clearly evident that the relocation of the town was both impracticable and illogical, and it was decided to adjust the existing town to the situation.

The general policy of TVA has been to acquire approximately a ¼-mile wide strip of land along the shore lines of the reservoir as a protective belt. But in the case of Caryville this practice was modified, since a strip of such width would have included the entire village. Thus the Authority attempts to adjust its policies to particular needs and requirements rather than to establish them as blind, inflexible regulations.

Portions of two of Caryville's major highways came within the area to be flooded by the new reservoir. This, however, proved to be something of a blessing in disguise, for a relocation of these highways resulted in a better approach to the town.

The Problem of the Lake

The inundated area immediately adjacent to the village has also been transformed from a potential detriment to an important asset. The result is that Caryville will be presented with an attractive lake covering an area of more than 100 acres and having outstanding scenic and recreational values.

In connection with the lake, however, a rather formidable problem presented itself. Norris reservoir is a storage reservoir with a varying water level. During the draw-down period of from 2½ to 5 months of the year the draw-down may amount to as much as 25 feet or more from the normal level, leaving unsightly mud flats and other disagreeable effects in its wake. In fact, such a fluctuation would entirely drain Caryville Lake, which would become an eyesore, if not a menace to health, rather than a beneficent asset to the community.

Therefore, it was considered advisable to hold Caryville Lake at a constant level approximately equal to the normal full water level of the main reservoir. To accomplish this result, a dam and spillway of concrete is being built across a narrow channel which connects the lake and the reservoir, thus allowing adequate drainage for the lake and at the same time maintaining the desired water level.

Streets, Common, School, Park

With the exception of the main highways, only minor changes were made in the existing street system of Caryville. Several entirely new streets were added, however, resulting in improved traffic circulation, making accessible houses previously fronting on alleys, and making available additional sites for new buildings. A system of pathways for the convenience and safety of pedestrians has also been worked out.

In general, the grouping and arrangement of the business section of Caryville was considered satisfactory for the present; therefore, no immediate changes are contemplated except that space for a town common has been reserved on TVA land at one end of Main Street near the playground. This common contains a number of fine old beech trees and will form a very attractive "front door" for the village.

The relocation of the public school offered some difficulties because the most desirable site did not provide adequate playground space. However, adjacent land belonging to the Authority was well suited to this purpose, and a nominal lease was entered into whereby the school is entitled to use a certain area as a playground.

Directly across the highway from the common and the playground, a blunt peninsula of a dozen or so acres is admirably suited for use as a community park. This area also forms a part of the TVA protective belt for the reservoir, but arrangements are being made for the establishment and maintenance of the peninsula as a public park.

The relocation of the Baptist Church offered no serious difficulties. The new site recommended by the TVA, Division of Land Planning and Housing, has been purchased by the church.

Additional nearby areas are available for development as recreational centers, tourist or resort camps, restricted residential sections and so on, as the need may arise.

Effective Cooperation

On the whole, the replanning of Caryville outlines a working technique for the handling of similar problems. Working alone, neither the energetic and conscientious work of the Caryville Committee, nor the technical competence of TVA planners could have accomplished a result so generally satisfactory to the various interests involved. As an example of close cooperation the project is outstanding, if not actually unique.

In the initial stages the project was under the direction of Tracy B. Augur and Raymond F. Leonard, regional planners. After regional requirements were determined, the preparation of detail plans and consultations with the Committee were handled by Carroll A. Towne, Chief of Town Planning Section, Division of Land Planning and Housing.

Needed: A New Concept of Community Life

DENYING that local self-government is "doomed," Louis Brownlow, Director of the Public Administration Clearing House of Chicago, told the Tenth Anniversary New England Conference that community government will be severely crippled unless citizens open their eyes to the wider concerns of state, region and nation, and refuse to permit jealousies of state and national governments to "undermine their self-reliance." Greater cooperation between local, state, and Federal governments depends upon the understanding and sincerity of citizens, he declared.

Discussing "The Future of the New England Community," Mr. Brownlow declared that "we must look toward a new concept of community life in which national control and state supervision may be made to serve the best purposes of the local community; that is, decentralized administration of those economic, social and cultural activities which form the basis of progress and which alone can stem decay."

The difficulty has been that the citizen has tried to divide himself into "three different citizens" for three different governmental purposes, Mr. Brownlow declared, and when a question as to what should be done in local affairs arises, the citizen "tries first to determine which of the three levels of government should be charged with the duty, and then which of the three levels should pay the bill.

"In this important respect we should consider not so much the possible advantages of each level of government in a competitive conflict as, rather, the possible advantages of each in a cooperative action.

"There never can be satisfactory community housekeeping until the self-reliant and independent thought of local people is geared into the local administration of all those activities which, taken together, comprise the task and obligation of municipal housekeeping," the speaker declared.

Amebiasis in the Tropics and in North America

By GEORGE C. BUNKER
Consulting Engineer, Panama City, R. I.

OF the diseases in the tropics produced by pathogenic protozoa, the most important and widely distributed is amebiasis. Craig defines the clinical term "amebiasis" as "the invasion of the tissues of man by the pathogenic ameba, Endamoeba histolytica," and the term amebic dysentery as a "bloody, mucoid diarrhoea caused by Endamoeba histolytica and occurring as one of the manifestations of amebiasis."

Amebiasis is caused by the ingestion of food and liquids contaminated by fecal matter containing the cysts of E. histolytica. The stools from acute cases of amebiasis seldom contain infective cysts and are not dangerous. The stools from convalescent cases and from untreated or improperly treated cases of amebic dysentery, and from cases of chronic amebiasis or carriers, contain infective cysts and are potentially dangerous.

In the tropics the water-supply engineer must reckon not only with the water-borne diseases which are prevalent in the temperate zone, such as typhoid fever, bacillary disentery, and common diarrhoea, but also with diseases caused by protozoa and parasitic worms, which are more common than in the temperate zone.

The part which water plays in the transmission of diseases in tropical and subtropical countries is far more important than has been generally recognized in the past. As time goes on, the purification of all surface supplies by filtration and disinfection will be considered absolutely essential even if they are practically clear and colorless and are taken from so-called uninhabited catchment areas.

I believe firmly in the control of the quality of water supplies by bacteriological examinations, but I am convinced that they may be responsible for creating a false sense of security in the case of unfiltered water supplies in the tropics because they do not indicate definitely that protozoa and parasitic worms are absent. Sanitary inspections are even more important in the tropics than they are in the temperate zones.
—G. C. B.

Amebiasis is an old problem in the tropics of Spanish America; it has existed in an endemic form in several countries and has been more or less prevalent in the others. Little progress has been made in the adoption of measures to control its transmission except in a few isolated colonies established by foreign capital for the production of fruit, minerals, etc.

Typhoid fever, yellow fever, hookworms and malaria in the tropics have thrust amebiasis into the background. It has been accepted undoubtedly by the majority of persons in endemic areas as one of the afflictions which they must suffer as a matter of course, and to which they give little thought. Many travelers in the tropics have contracted amebic dysentery and learned to respect it after taking the treatment required to regain good health. This disease still remains as one of the greatest hazards to the traveler in Central and South America, because progress in sanitation and personal hygiene have not kept pace with the improvements made in transportation in the last 20 years.

Infection of Population with E. Histolytica

As the result of surveys, it is estimated that between 5 and 10 per cent of the population of the United States is infected with E. histolytica. In the tropics a greater percentage of the population is infected with this parasite, as is indicated by data obtained by Faust in his study of six groups of persons living in Panama which "represent a complete cross-section of life in Panama, from the lowest to the highest economic strata, and from complete unsanitation to sanitation par excellence in the tropics."

Group	Per Cent Incidence
Native River Village (unsanitated): A	72.7
Native River Village (unsanitated): B	33.0
Male Medical and Surgical Services, Santo Tomas Hospital, Panama City	19.1
Female Medical and Maternity Services, Santo Tomas Hospital, Panama City	14.3
White Patients and Staff, Gorgas Hospital, Canal Zone	8.55
White Staff, Canal Zone Administration Buliding.	2.81

—"The Incidence and Significance of Infestation with Endamoeba Histolytica in New Orleans and the American Tropics." E. C. Faust, Amer. Jl. Trop. Med., 11: 231, May, 1931.

The incidence of infection with E. histolytica in Haiti was reported by Williams and Thomas as 50.0 per cent in 109 domestics, and as 16.26 per cent in 2,069 hospital patients by Williams, Wildman and Curtis. De Ballard reported an incidence of 30.0 per cent for Venezuela in 1918.

Transmission of Amebiasis

A difference of opinion prevails among protozoologists, physicians, and public health workers as to the extent to which amebic dysentery is transmitted by water in the tropics. Some believe that infected food is a more active agent in its distribution than a polluted water supply, while others believe that direct personal contact with infected feces is the principal method of transmission. It is generally agreed that carriers are important agents in the distribution of the disease. Flies must also be given consideration.

The Chicago epidemic in 1933 threw the spotlight of publicity upon amebic dysentery as a water-borne disease. The contamination of drinking water in hotels, restaurants, and industrial plants by sewage through cross-connections or faulty plumbing, has been emphasized strongly in the literature published relative to this epidemic, but little attention has been given to the continuous or intermittent contamination of surface water supplies

by the cysts of Endamoeba histolytica. In the tropics, at the present time, and during past years, pollution of water by feces deposited on the catchment areas of surface water supplies is the problem which requires attention rather than pollution through cross-connections.

The opinion of some physicians, public health workers and others that contaminated water is not an active agent in the transmission of amebiasis as is infected food, or the finger-to-mouth transfer of feces, appears to be based on the supposition that a larger number of cysts are ingested through the two latter modes of transmission. Without going into details as to what may happen to decrease the number of cysts reaching the mouth, directly or indirectly, the writer has reached the conclusion that water supplies, polluted as they are in the tropics, are equally important as a mode of transmission of amebiasis as other agents, and in some cases, are more important.

ACKNOWLEDGMENT.—This material is a brief abstract of a section of an unusually complete and thorough analysis of water-supply conditions in the tropics of Spanish America relative to water-borne diseases, as prepared by George C. Bunker, Consulting Engineer, Panama City, R. P., for the *Journal of the New England Water Works Association*.

Laying a Cast Iron Sewer Line with Relief Labor

By HENRY P. HARRIS
City Engineer, Anniston, Ala.

ANNISTON is a community of approximately 22,000, located in northeast Alabama, and although the surrounding territory is predominantly agricultural, the presence of the state's largest chemical manufacturing plant, a cast iron pipe foundry, and several textile mills, foundries and other manufacturing plants make Anniston one of Alabama's important industrial centers.

The sewage of Anniston empties into Choccolocco Creek, several miles south of the city, through a 24-inch line. Early in 1935, this line became obstructed at a point about 1,000 feet from its entrance into the creek. Sewage overflowed onto adjacent farm lands, creating a situation which called for immediate action. An inspection of the line by the County Health Officer and the City Engineer showed that practically the entire 1,000-foot obstructed section was crushed in from the top. The cover on the line averaged from 8 to 10 feet, and this section was frequently inundated. It is thought that chemical reaction from gases in the line weakened the old pipe to a point where it could no longer withstand the pressure of such deep cover. It was immediately decided to replace the entire 1,000-foot section with cast iron sewer pipe 30 inches in diameter, with a smooth barrel inside and ribbed outside for strength, and equipped with a locking joint.

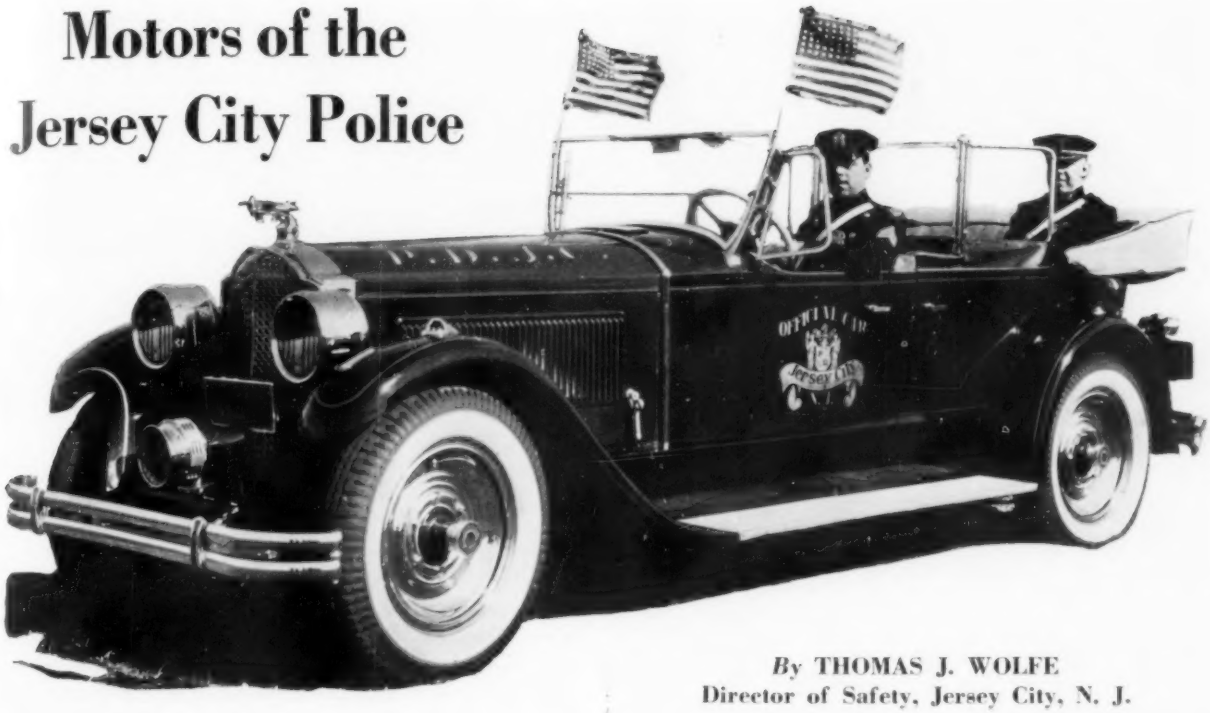
LOWERING A SECTION OF CAST IRON SEWER PIPE INTO THE TRENCH

The city made an arrangement with the Alabama Relief Administration to furnish one-half of the 1,050 feet of cast iron sewer pipe required, the city furnishing the other half. The ARA likewise furnished the necessary labor from local relief rolls. The first step was to dig a trench through which the sewage was diverted while the new line was laid. A cofferdam was constructed at the point where the line entered the creek in order to prevent creek water from flooding the new trench. Installation of the new cast iron line was then begun. Owing to the fact that hand labor had to be used for trenching, and that the soil was so unstable that trench walls caved in over night, only 20 to 30 feet of pipe could be laid at a time. For this reason the pipe was quickly covered. Although progress was relatively slow, the line was completed within a reasonable time, and it has been satisfactory in every way.

The pipe was placed in the trench by letting it down from ground level into the trench with a rope sling; and after proper alignment, it was locked with a quarter-turn which made it secure to the previously installed length. Joints were made with a strong cement mortar, which was wiped by hand around the ends of the bells and into a mortar groove between the end ribs. This mortar joint was as tight as needed for this particular installation, although if we had desired a tight joint, we could have secured it by sealing with hot bituminous material and using an external band provided for that purpose.

This cast iron sewer pipe was manufactured by the Alabama Pipe Company, of Anniston, Alabama, under the trade name of "Atlas."

Motors of the Jersey City Police



By **THOMAS J. WOLFE**
Director of Safety, Jersey City, N. J.

Mr. Wolfe was on the Jersey City police force for 30 years and was Chief until February, 1934, when he became Director of the Department of Safety. This article describes the equipment he provided to perform the police services he developed.

THE motor police of Jersey City, N. J., are concentrated in the Traffic Bureau and the Motor Patrol Bureau. The rolling equipment consists of 33 motorcycles, 35 automobiles, 3 emergency trucks, 7 patrol wagons, an armored payroll car, 2 wreckers, and a touring car for distinguished visitors, shown as the top-piece of this article.

The Traffic Bureau has charge of the motorcycles, all Harley-Davidsons of 1928-33, which are attached to the eight precincts. Eighteen of these are on duty 16 hours per day, 8 A. M. to midnight; two are on duty from midnight to 8 A. M. They patrol the heavy-duty highways and the Pulaski Skyway from the Holland vehicular tunnel under the North River.

Two-Way Radio

In 1931 the first automobiles were purchased for the Motor Patrol Bureau, consisting of 12 Ford roadsters. There was no police radio at this time; but in 1933 a two-way system was installed, and all the cars were equipped for answering headquarters. There are now 25 Fords (12 purchased this year), all coupés, of which 21 have two-way radio.

During the last few months a fleet of 6 Chevrolet coupés have been added and equipped with radio. In addition, there is what is called the heavy artillery: 2 Buick squad cars, a Packard touring car, and 2 Pierce Arrows, all with radio and used for roving, the personnel always including an officer in uniform.

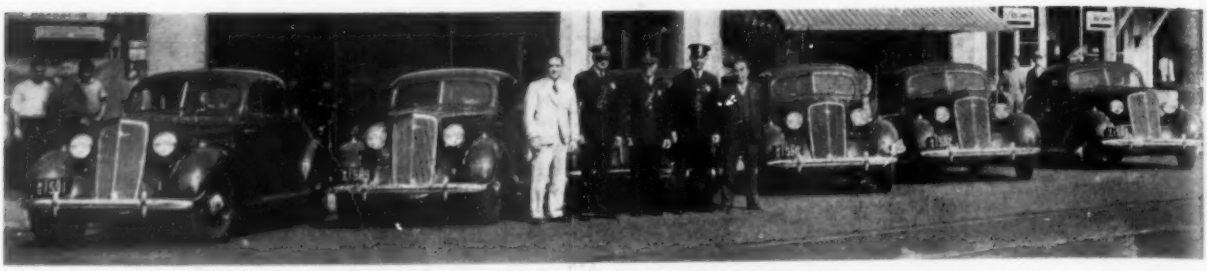
The patrol cars are on 24-hour duty and are directed from headquarters, not from the precincts. All complaints, whether telephoned to the station houses or not, are handled by the headquarters radio. The speed of the patrol work is shown by the average time it takes to cover a call—2½ minutes. In 1934 there were 3,500 calls per month. If all these calls could follow one another without intermission, the criminal phase of Jersey City's police work for a year could be handled in about 60 days. Though the radio is a year and a half old, Inspector of Traffic Maurice Murphy still marvels at the speed with which the men are reached, act, and report back.

Emergency Trucks

The three emergency trucks consist of a 1931 Mack and two units assembled by city forces on a Mack and a Buick chassis. All three are open trucks with longitudinal seats on which are cushions and under which are tarpaulins for stormy weather, oxyacetylene set, firearms and tear bombs, rope, shovels, axes, inhalators, and even radio packs which require only liquid to become heat packs. The home-built units have portable searchlights operated by a Homelite generator that also is portable.

These emergency trucks are naturally one of the prides of the force. They are essentially practical and are called out on the average of 90 times a month. One is stationed uptown at headquarters, another downtown, and the third on reserve.

Each carries a crew of 7 picked men. The method is to send a call through the force for mechanics. The applicants are examined, rated and classified. Captain J. J. Sheridan, in charge of Motor Patrol, has a list of men who have qualified but are not yet needed. There are some 40 men on the list today—name, age, specialty—with the top man rated best, and so on down the list. On the emergency gang are a rigger, acetylene burner, machinist, electrician, and even a mortician.



JERSEY CITY'S LATEST PURCHASES IN PATROL CARS

The men are not only instructed in the use of all these appliances and tools, but the instruction is continued systematically. There is an instruction period every day

WATCHES FOR VIOLATIONS—SPEAKS LOUD

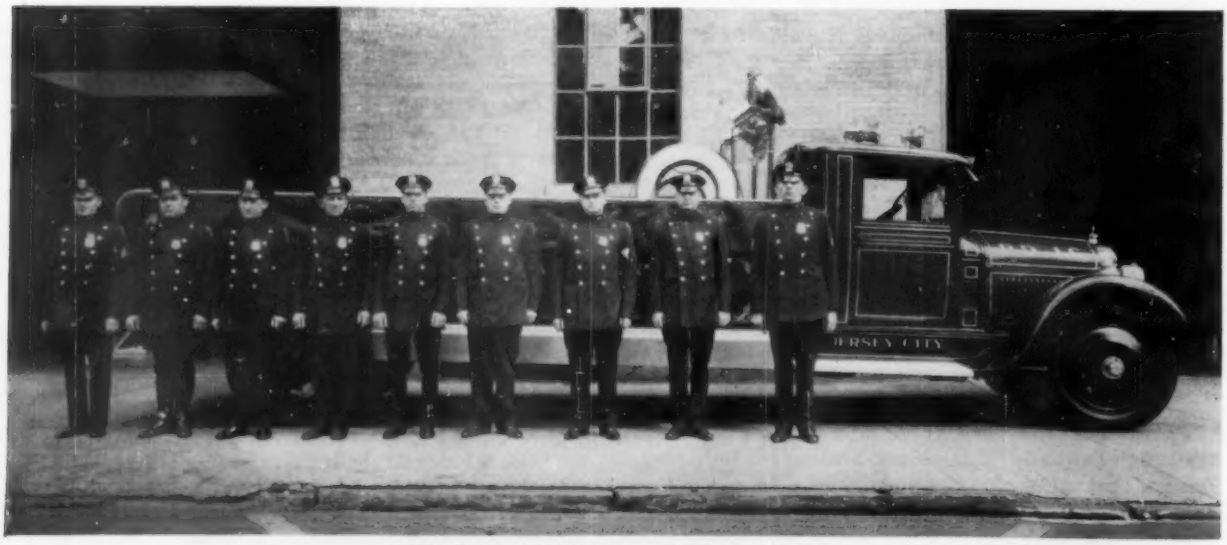
from 1 to 2:30 P. M. on some phase of the work and the equipment it involves. One day it is gas; another day, tear bombs; another, bullet-proof vests. Machine-gun practice is held once a week, and all the men are experts. Every day there is a half-hour's practice in administering artificial respiration. This is as necessary to the proper performance of this vital work as practice is to a pianist. There is a rhythm that must be maintained, especially in the technique by which one operator relieves another.

Calls run the gamut of disaster, including cat in tree, dangerous ice hanging from a roof, leaks, gas cases, injuries of all kinds. A frequent accident—three times in a night recently—is the breakage of an ammonia pipe in an apartment refrigerator, spreading the fumes through the building and sending the inhabitants to the sidewalk. The crew shuts off the flow. The record of achievement includes 25 lives saved. In three instances, persons pronounced dead by doctors were revived by the use of inhalators. This feat was also achieved in the case of a baby, by mouth breathing.

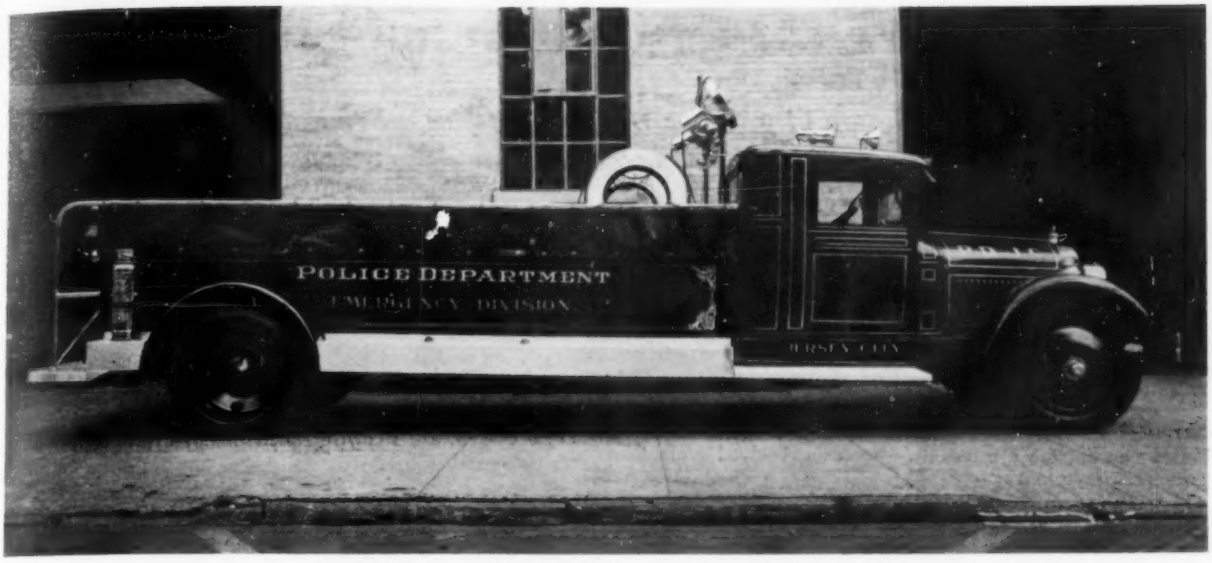
Two other pieces of equipment regularly carried are a leg-stretcher for broken legs and a collapsible ladder which can be placed in a vertical position on any ground slope or irregularity. Another piece of equipment that is thrown on the truck when needed is a collapsible boat. There are two of these, purchased from the Hammond Lumber Co. of Los Angeles, a year and a half ago. One of the boats was recently used when an aeroplane went into Newark Bay. This boat has elicited much interest and has since been purchased by other police departments.

The emergency trucks can serve as patrol wagons, but there is a prison van with a closed body that has been built on a Cadillac chassis by the city for transporting women, whom the municipality will not allow to be driven in open patrol, and for safe keeping of the passengers and the safety of the officers. Outside the padlocked rear door there are facing seats for two officers. The key to this door is carried by the driver. In this door there is a small hole for the introduction of a tear bomb if necessary.

The Voice of Safety is an important feature.



A JERSEY CITY EMERGENCY CREW ON PARADE



EMERGENCY TRUCK THAT CARRIES SEVEN MEN OF MANY TRADES

How would you like to have this experience? You are driving along a little too oblivious of the traffic rules, when a voice audible for six blocks roars: "Car Number 9Q 57 66, you have passed a trolley on the left; pull up to the curb." It is the number of your car, and you obey. A milk-white 1935 Ford coupé, with loud-speaker on the roof, draws alongside and a sergeant in uniform gives you a talk on safety.

This is what the Jersey City police are now doing. The Voice of Safety speaks from 8 A. M. to 5 P. M., and during the noon hour delivers a 15-minute talk at some plant.

Finally, there is the big open touring car for distintinguished visitors, painted a lustrous green and gold. To accompany it there are two motorcycles with framework painted yellow, lettered on one side "Jersey City Police" and on the other side "Guard of Honor."

The Way to Municipal Financial Chaos

A SERIOUS threat to the financial stability and integrity of the municipalities in many states is resulting from the efforts of the National Association of Real Estate Boards and other special interests to write into state constitutions or statutes provisions for unwise restrictions in taxes on real property.

In New York selfish or shortsighted groups have been advocating an amendment to the state constitution which would limit aggregate real estate taxes to 2 per cent of "the true value of the property in money," such limited taxes to cover operating expenses as well as interest and principal on indebtedness of the cities, villages, towns, school districts, special districts and counties in the state.

To show just what the adoption of this reactionary measure would mean to the municipalities, the New York State Conference of Mayors and Other Municipal Officials has published, in a pamphlet entitled "The Way to Municipal Financial Chaos," a memorandum prepared in October, 1935, by its Advisory Committee. In addition to definite figures as to how such a constitutional amendment would affect every city and first- and second-class village in the state, the pamphlet presents the following summary:

Effects in a Nutshell

The proposed constitutional tax limitation on real property for municipal purposes would:

1. Create a deficit of $148,000,000 in 75 cities and first- and second-class villages.
2. Make it possible for 79 other cities and villages to impose on real estate a tax burden of $4,000,000 greater than is now necessary.
3. Make it impossible for five cities and villages to raise sufficient money by the real estate tax to pay interest and principal requirements on their debt.
4. Prohibit many municipalities from raising by a property tax sufficient money to meet the cost of essential services after paying debt service and fixed charges.
5. Compel many cities and villages to abandon or curtail many essential municipal services which benefit real estate.
6. Paralyze local government in one municipality, and in a neighboring community permit and encourage profligacy in municipal expenditures.
7. Ruin the financial credit of all municipalities and force some into actual bankruptcy.
8. Wipe out the constitutional preferential status of municipal bonds which has been responsible for the integrity and attractiveness of New York State municipal bonds.
9. Make it impossible for many municipalities to obtain funds to carry out mandatory features of existing laws such as old-age pensions, compensation and liability insurance and public relief.
10. Make the county the tax levying unit, and therefore the county would determine the proportion of the real property tax to be used for general village purposes and for all other purposes, including the use of the county.
11. Throw the cities and villages of New York State into as great financial chaos as is being experienced in the few states which have adopted a similar limitation.

A Well-Operated Meter Shop

The Oklahoma City Water Department Has a Separate Meter Shop at the City Central Shops and Warehouse

WHEN Oklahoma City took over an old automobile factory in the southwest section of the city about two years ago for a central shop and warehouse for all city departments, the Water Department moved its meter shop there and established a storage depot, to which all water department supplies are gradually being moved. Some heavy pipe are still located at the old depot. The central shops are about 2½ miles from the center of the city.

All new meters are tested as soon as received from the manufacturer, and are tagged and set on the outgoing storage shelf ready to go into service.

Caring for Damaged and Inaccurate Meters

Whenever a meter reader finds a meter that is damaged, stopped or obviously registering over or under the proper amount, he reports it to the maintenance crew, and the meter is carefully investigated. If it is found to be out of order, the maintenance crew removes it, places another tested meter in its place, and attaches a manila tag to the old meter, showing the address from which it was removed, the reason for the change, the meter order number, size and make. The tag remains with the meter as meter as it goes through testing and repair and back onto the shelf, "as good as new," ready to go out into service again. The tag also bears the date of removal and the name of the man in the shop who did the repair job on the meter.

When the meter reaches the shop, it is given a meter repair ticket numbered serially. This ticket, which is herewith reproduced, shows the same information as the original tag, and in addition states the trouble found with the meter and the condition of the register. It contains space for the test records before the repairs and after, and for the initials of the man who checked the meter and repaired it, and the date. On the reverse of the ticket, which is punched for filing, is space for a complete inventory of the material used in the repairs, and the time required for the work. In this manner it has been possible over a period of years to determine which meters operate to the best advantage in the difficult sulphate water of Oklahoma City.

Testing the Meters

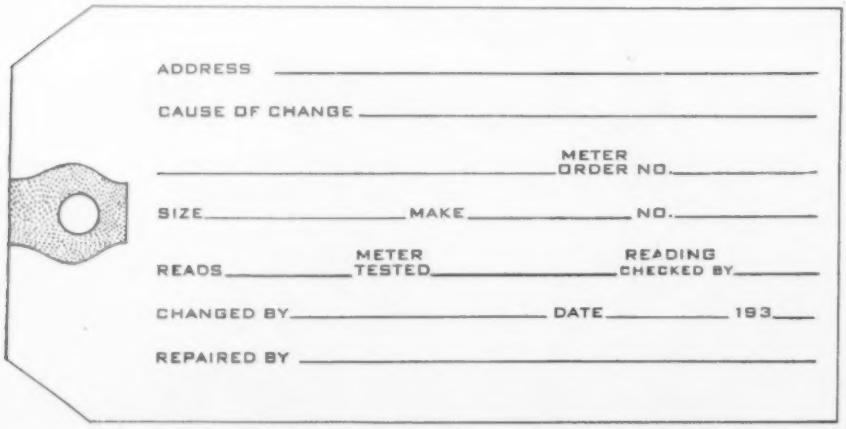
The meter is tested in a Mueller testing machine, water being both measured and weighed. Two tests are made. A ⅝-inch meter is first tested on a ⅜-inch orifice at 15 rpm and then at the rate of one quart of water per minute. Larger meters are likewise tested on an average flow and a minimum flow. The second test is timed by an electric clock with a large second hand readily seen by the test man. On the first test the meter must register within 2 per cent, and on the second 90 per cent or better. All tests are made with 10 gallons of water on the domestic meters, and 100 to 1,000 gallons on the large meters, or one revolution of the test hand.

The Repair Shop

A remarkably compact repair shop has been devised as a result of experience. In a space about 16 feet long by 6 feet wide are facing benches for four men who handle all the work. Within this space are the benches, with all the tools mounted on a board in front of the main, and beside the benches are the cabinets carrying the stock of all parts, including complete repaired registers, for all makes of meters in use in the city. Trident, Nash and Hersey are the three principal makes used. The stock of gear trains and miscellaneous gear train and register parts is in bins close by. This stock is quite complete and well arranged.

When a meter is turned in and found defective, the train and register are removed and necessary new or repaired parts are installed, the meter tested, any necessary changes made in the register, and then, when accurate to the required degree, the meter is placed in the rack ready for service.

One man works on register repairs and gear trains. On each bench is a special patented vise with a hand wheel which turns up the vise to hold the meter firmly in place so that only one wrench is needed to take the meter apart. This vise holds only ¾- and ⅝-inch meters.



THIS MANILA TAG IS ATTACHED TO A WATER METER WHEN REMOVED BY A MAINTENANCE CREW FOR REPAIRS BECAUSE OF DAMAGE

Size 4¾ x 2⅝ inches

THE SERIALLY NUMBERED METER REPAIR TICKET

On the reverse is space for the inventory of material used in repairing the meter and the time required. Size 6⅞ x 4 inches

OKLAHOMA CITY WATER DEPARTMENT **No. 39018**

METER REPAIR TICKET

Street Address _____

Size_____ Make_____ Type_____ Number_____ Reading _____

Trouble _____

Register Condition _____

TEST BEFORE REPAIRS		TEST AFTER REPAIRS	
ORIFICE	PER CENT	ORIFICE	PER CENT

Checked by_____ Repaired by_____ Date_____

A Large Stock Found Economical

The Water Department buys several years' supply of dials, glasses, gaskets, etc., at one time for the smaller meters, and about one year's supply for the larger meters. Screws and bolts are sometimes made locally, of special composition metal to resist the sulphate water, when meter company stock materials are not satisfactory.

All new meters purchased have copper liners on the cast iron breakable bottoms. The Department has its own dies for copper liners for old meters, and whenever an old meter is brought into the shop it is equipped with the new copper liner.

Fittings and Service Pipe Storage

The whole shop is 40 x 40 feet in plan and contains the meter repair section with its repair benches, water bath, acid and cleaning baths, and testing machine, and also the racks for the storage of fittings, service pipe, both galvanized iron and copper, hydrant stems, which are made at the machine shop complete, and special hydrant packing, which is made up at the shop from loose packing compressed in a special die so that there is no waste of material out in the field and even the greenest hand can slip one of the packing rings into position, giving the replacement in the minimum of time.

Machine Equipment

Close to the meter repair benches is an emery stone with a ¼-hp motor, and a buffer with a safety glass shield, the lower portion of which is plate glass and the top of which is non-breakable glass. Thus the part which is readily scratched and scarred can be replaced cheaply. Next is a high-speed hand-cranked emery wheel with a rubber pump valve in place of the edge of the emery. This is used to run back the meter registers quickly. The third machine on this bench is a 16-inch diameter steel disk faced with carborundum cloth for refacing tops, bottoms and pistons of piston meters. Beneath the machines and in front of the bench is a wooden stand onto which the parts being worked on can be dropped without damage. A small electric hand drill on a stand completes the light equipment. A large drill press and a slow-speed power grinder are the larger pieces of equipment.

Not even one pin is issued through the delivery window or out of the door unless the man who takes it out has signed a standard triplicate ticket telling the entire story. Thus every bit of material, or meters, valve stems, hydrant stems or anything else is accounted for and the shop keeper's inventory kept up to the minute.

The Water Department, including the filtration plant, distribution system, services and meters, is under the immediate direction of Thomas G. Banks, Superintendent, Water Department, who gives credit for the efficient service station and meter shop to Assistant Superintendent M. B. Cunningham, who is now acting as Assistant City Manager.

Handling Strikes

FIVE things which city officials should remember when the city is confronted by an industrial strike are summed up by Donald C. Stone, of the Public Administration Service, in the November issue of *Public Management*. Mr. Stone says:

1. The role of the city, and more particularly that of the city police, should be that of an umpire interested in enforcing the rules of the game and in protecting the rights of all parties. Beyond this, the city should not concern itself with the issues or with the merits of the position taken by the employers or the strikers.

2. Opportunity should be provided for free speech and free assembly. Proper places should be designated where labor leaders and others who have things to say can talk on any subject at any time, to any one who will listen.

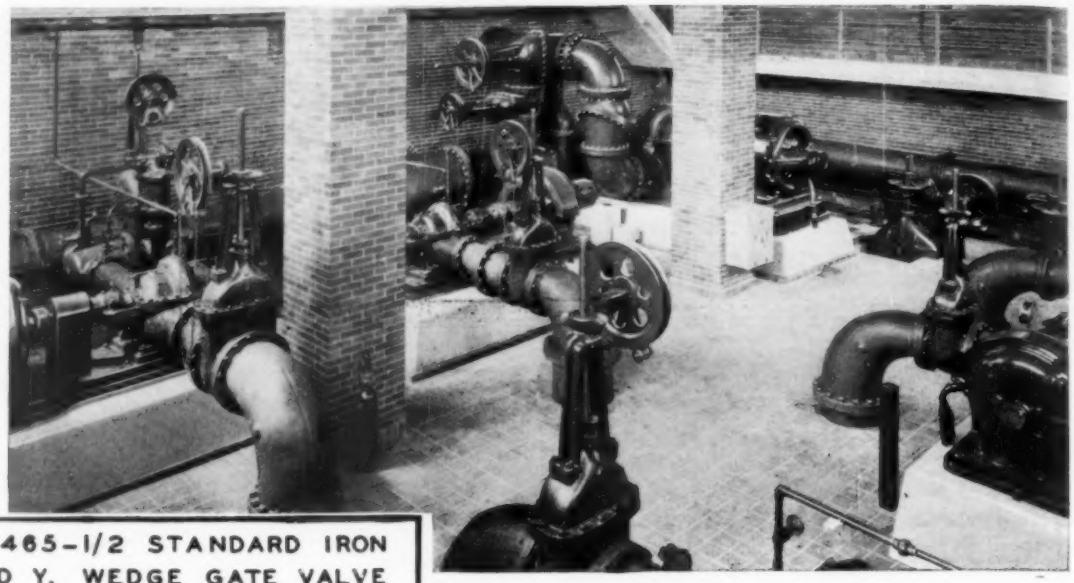
3. As soon as a strike occurs—before bricks have been thrown and passions aroused on both sides—the city manager, mayor, or chief of police should call a council of strike-leaders to discuss with them the problems of law enforcement that may arise. A similar council should be called with employers. Finally, the administrator should attempt to bring together both strike-leaders and employers to establish rules covering picketing, carrying of weapons, making threats, etc.

4. Only trained policemen should have police authority. Vigilantes have invariably ended in breaking the very laws they have been organized to uphold.

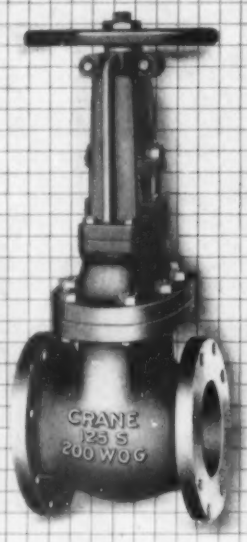
5. Display of weapons or use of violence should be avoided whenever possible, and militias should be called only in extreme emergency. The primary objective of the city is to prevent damage to persons and property, and every precaution should be taken to prevent charges that the police have unnecessarily used violence or that they have been partial in the treatment of parties concerned.

"It should be remembered," says Mr. Stone, "that strikes are manifestations of economic and social problems which are beyond the jurisdiction of the city to settle. The city may be the scene of the strike, but, since the issues involved are beyond its jurisdiction, it should not attempt to adjudicate or to arbitrate."

THIS VALVE · HAS PLENTY IN RESERVE



CRANE 465-1/2 STANDARD IRON O.S. AND Y. WEDGE GATE VALVE



STYLES

STEEL OR BRASS STEM; SCREWED OR FLANGED; ALSO WITH NON-RISING STEM.

1 RISING STEM, OF STEEL OR BRASS (CRANE STEM METAL).

2 TAPERED COLLAR ON STEM MAKES TIGHT JOINT WITH MACHINED SURFACE ON UNDERSIDE OF BONNET TO PERMIT PACKING UNDER PRESSURE WHILE WIDE OPEN.

3 IRON BODY FOR LONG, RUGGED SERVICE. CARRYING HIGH FACTOR OF SAFETY.

4 BRASS TO BRASS SEATING SURFACES; DISC GUIDES INSURE TRUE AND EASY MOVEMENT, PREVENT WEAR OF SEAT FACES.

A high factor of safety guarantees long service life for this Crane Wedge Gate Valve. Under test, it took 1500 pounds of hydraulic pressure to break the 8-inch size, and at 500 pounds it was still tight! Offered for steam working pressures to 125 pounds, this valve will do its job with ease. Its seating surfaces give tight joints for years to come. It can be packed under pressure.

In water lines particularly has this valve proved its worth, its seating surfaces withstanding the severest kind of service without noticeable wear or damage. In scores of other similar applications it will give uninterrupted and economical service.

This valve is typical in design and workmanship of an extensive variety of Crane valves and fittings for water works, sanitary projects and allied plants. There is a Crane branch or distributor near you with a complete stock. A phone call will save time, bring you what you want.

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.

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VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

Mention THE AMERICAN CITY—it helps.

SIDE VIEW OF THE WATER-SUPPLY AND SEWAGE-WORKS MODEL
Note the poster with identifying numbers and legend for the information of the visitor

Water and Sewage Works Model Exhibited by Massachusetts Health Department

IN order to bring to the attention of its citizens in a striking manner the importance of proper water-supply and sewage-treatment works, the Massachusetts Department of Public Health was instrumental in building a model of the public water-supply and sewerage system found in a small community. The work was done under the supervision of the Engineering Division of the Department, by the Emergency Planning and Research Bureau, Inc., of Boston, an organization established to provide employment for members of the architectural and engineering professions who are in need of assistance.

The main street of this model village is shown with its homes, store, church and general landscape on a sloping terrain. A small water-supply reservoir and sand filtration plant is located above the village, and the distributing main is shown supplying water for domestic and fire protection.

The sewage-treatment plant consists of two slow sand sewage filters, together with a settling tank. The main trunk sewer from the village is shown in an open trench. A cross-section of one of the houses illustrates in detail the water and sewer connections. A combination of pumps, tanks, and tubing concealed under the model causes a continuous flow of water to pass through the reservoir and overflow into the brook which winds down the slope through the village; colored water representing sewage is caused to discharge onto the surface of the slow sand sewage filter, and from the underdrain of the filter the effluent discharges into the river. A fountain located in front of the church throws a small stream of water into the air.

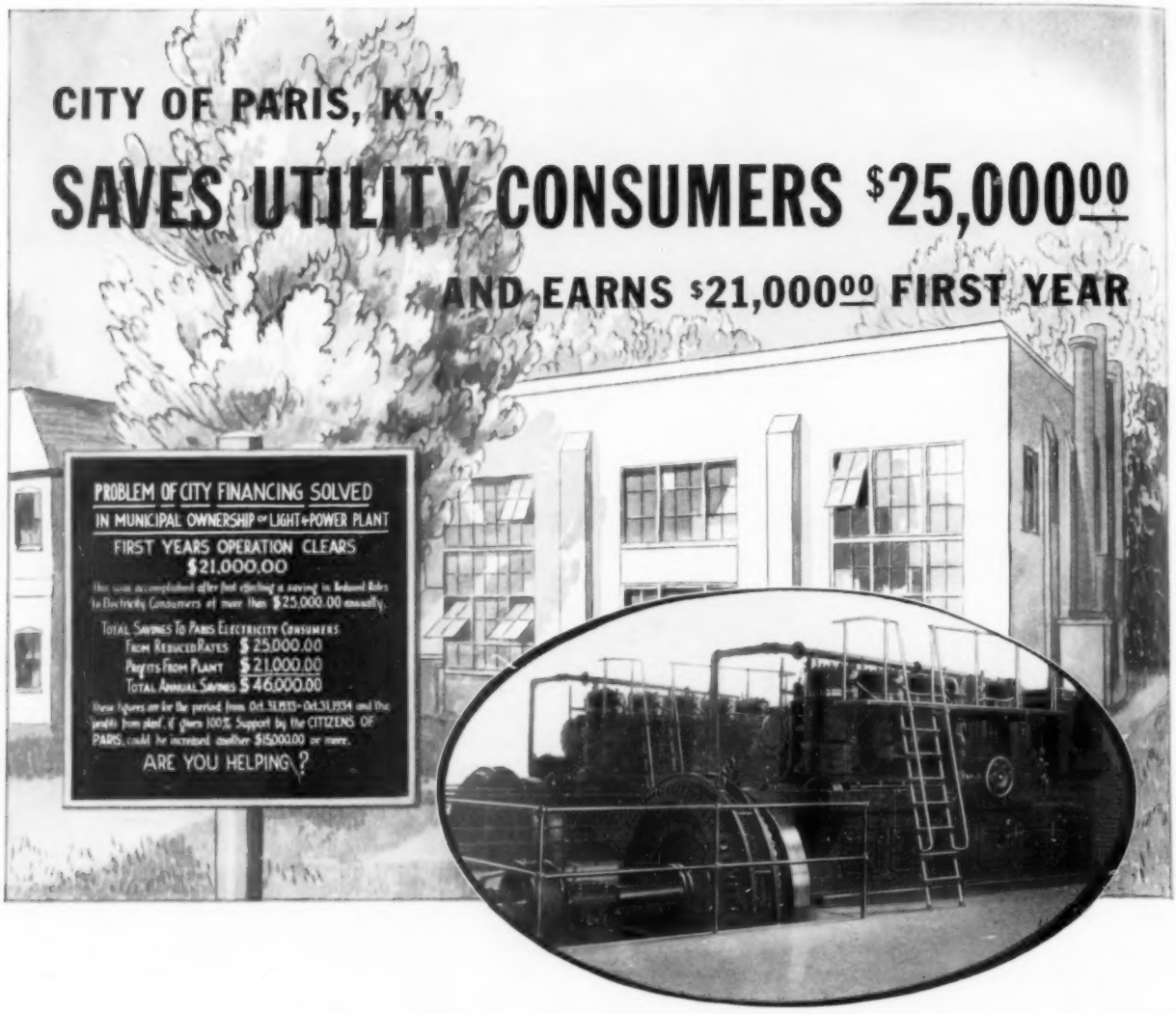
The model was first displayed at the well-known Brockton Fair for one week in September, then at the Eastern States Exposition in Springfield, and at the Great Barrington Fair for a similar period. At present, the model is on exhibition at the Harvard University School of Public Health, Cambridge, Mass. THE AMERICAN CITY is indebted to Arthur D. Weston, Chief Engineer, and to Joseph C. Knox, Assistant Engineer, State Department of Public Health of Massachusetts, for the photographs and data.

THIS MODEL SHOWS THE VILLAGE IN ALL ITS COUNTRY SIMPLICITY AND WITH PROPER WATER-SUPPLY AND SEWERAGE FACILITIES

Berkeley's Christmas Pageant

The Christmas Pageant, "The Feast of Yuletide," written by Ellen Irwin Winter, a local girl, was produced under the sponsorship of the Berkeley Recreation Department at the University of California Gymnasium on Sunday, December 22, before an audience of some 6,500 people. This pageant, which depicts the history of Christmas from early Egyptian days on through the Roman period to our present-day customs, includes in the cast over 500 children and 50 adults, chief among them being Mayor Edward N. Ament himself, who portrays the part of Mayor in the pageant.

CHARLES W. DAVIS,
Superintendent of Recreation.


CITY OF PARIS, KY.
SAVES UTILITY CONSUMERS $25,000.00
AND EARNS $21,000.00 FIRST YEAR
PROBLEM OF CITY FINANCING SOLVED
IN MUNICIPAL OWNERSHIP OF LIGHT+POWER PLANT
FIRST YEARS OPERATION CLEARS
$21,000.00
This was accomplished after first effecting a saving in Reduced Rates to Electricity Consumers of more than $25,000.00 annually.
TOTAL SAVINGS TO PARIS ELECTRICITY CONSUMERS
FROM REDUCED RATES $25,000.00
PROFITS FROM PLANT $21,000.00
TOTAL ANNUAL SAVINGS $46,000.00
These figures are for the period from Oct. 31, 1933 - Oct. 31, 1934 and the profits from plant, if given 100% Support by the CITIZENS OF PARIS, could be increased another $15,000.00 or more.
ARE YOU HELPING?

● This sign, prominently displayed in front of the Power and Light Department office of Paris, Kentucky (Pop. 6,500), tells the dramatic story of what F-M Diesels have done for this town in exactly one year!

PROBLEM OF CITY FINANCING SOLVED
IN MUNICIPAL OWNERSHIP OF LIGHT
AND POWER PLANT

FIRST YEAR'S OPERATION CLEARS $21,000. This was accomplished after first effecting a saving in reduced rates to electricity consumers of more than $25,000 annually. Total savings to Paris electricity consumers from reduced rates, $25,000; Profits from plant, $21,000. Total annual savings, $46,000. These figures are from the period from Oct. 31, 1933-Oct. 31, 1934, and the profits from the plant, if given 100% support by the citizens of Paris, could be increased another $15,000 or more.

If *your* town could use the same savings that F-M Diesels have brought to Paris, write for full information to Fairbanks, Morse & Co., Department D91, 900 S. Wabash Ave., Chicago, Ill. 34 branches at your service throughout the United States.

FAIRBANKS-MORSE *Diesel Engines*

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POWER, PUMPING AND WEIGHING EQUIPMENT

Faster Billing, Quicker Collections, Fewer Deadheads, Under New Regime in the Wheeling Water Department

By J. B. QUINLAN
Water Clerk, Water Department

BEFORE the present system of billing water was installed in Wheeling in 1926, bills were rendered from four to five weeks after the meters were read, and then were payable ten days after the date on which they were sent. This caused all kinds of complications. Sending all bills out at one time placed a heavy burden on the Water Department and then on the Treasury Department, when the bills were paid within the ten days in order that consumers might take advantage of the discount. Frequently it happened that people moved from one house to another between the time the meter was read and the date on which the bill was delivered. Thus the consumer would receive a bill for his former address over a month after he had lived there, and a similar period would pass before he would receive a bill for water consumed at his new address.

Billing Vacated Property

In 1934, the Water Department began sending out final bills as soon as the meters were read in a vacated address, instead of waiting until the regular billing date for that district. However, it was often necessary to send two bills because of the long period between the reading and billing dates for regular monthly bills. In most other cases the final bill was received approximately one week after the monthly bill. This proved as unsatisfactory as sending finals at the regular time, since the consumer wondered why he received two bills at once when he had been paying regularly.

Under either system there was considerable loss to the Water Department. When bills were sent one month after the consumer had moved, his address might not be known, or he might have moved some distance from Wheeling to a place where it was impossible to bring pressure in collecting the amount due. When two bills were sent out at the same time or within a week of each other, many consumers who had paid the final bill as a just debt could not be convinced that they really owed the account. If they did not happen to be using water in their own names at the new location, there was no way to collect the bill.

Billing Methods Revised in 1935

It was for these reasons that the system of sending bills was revised. Now the consumer receives his bill from five to ten days after the meter is read; and when he moves, only one bill need be rendered. Of course, it was necessary to send two bills in one month to every consumer in some of the districts; but after the situation was explained to them, they approved and were glad that the matter had been settled once and for all.

While revising the billing system, the Water Department tried to arange billing dates for the various districts according to the time it was thought easiest for residents therein to pay. For instance, the greater part of the consumers who live in the Eighth District work in the steel mills. Pay day for these people is the 10th of each month; so their water bills are made payable on that day.

For accounts which are uncollectable because the persons who contracted them cannot be located, an alphabetical index and a numerical system of filing the accounts have been set up. When a "moved" account that has no forwarding address, or on which the new address is several miles from Wheeling, is found, and a month has elapsed since the final bill was rendered, a collection letter is written. If there is no response within a given length of time, an index card is made out, and both it and the account are filed in a section set aside for that purpose.

Whenever a consumer signs an application for water service, the clerk uses these files to determine whether there is a dead account against that particular consumer. This necessarily facilitates transfers from dead accounts and also eliminates some of the Department losses. A periodic check is made of these accounts to locate any which may have been overlooked.

Collections Increased

In September, 1935, there was an increase of 179.7 per cent in collections of delinquent accounts over September, 1934. This increase may be explained in numerous ways. Formerly, it was customary for all collectors to be paid on a salary basis. Now an experiment is being conducted to decide whether collections would be stimulated if the collectors were paid on a commission basis. On or about August 15, 1935, a man was given an allotment of dis-

Action

The Wheeling *News* reports that in the July 28, 1935, Wheeling newspapers Harry J. Humphrey, City Manager, Wheeling, "made the announcement that on and after August first all water consumers delinquent in their water accounts would have to make arrangements to take care of their accounts at the City Treasurer's office, or be faced with discontinuance of water service five days after a shut-off notice. At 10 o'clock Monday morning, there was paid into the City Treasurer's office $200 in delinquent water accounts, and up to noon July 31 there was received a total of $889.36 on delinquent accounts only."

"YOU ROAD BUILDERS— Put this Tractor to the Test"

If you want real down-to-earth facts about efficiency in dirt-moving power, ask experienced operators—men who know both International Harvester TracTracTors and *other* crawler tractors. Then ask the owner-contractors. And finally, watch the TracTracTor on the job. You will come to definite conclusions as to TracTracTor *superiority*—in power, stamina, accessibility, service, and LASTING ECONOMY.

Remember this about TracTracTors: they are by far the *most accessible, most easily serviced* crawler tractors on the market.

Be guided by the 30-year experience of International Harvester—world's largest tractor builder—when you invest in power. For complete information on the International Harvester line of gasoline and Diesel power, consult the nearest distributor or branch.

SEE THE EXHIBIT *of International Industrial Power and International Trucks at the Convention and Road Show of the American Road Builders' Association, Cleveland, O., January 20 to 24.*

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. (INCORPORATED) Chicago, Illinois

INTERNATIONAL TRUCKS

In most convincing fashion International Trucks have proved their reliability and economy in dump-truck work. Take the Model A-8 shown at the left. It is one of four owned by the C. M. Payne Contract Trucking Co., Spokane, Wash. All of them worked on the Grand Coulee dam, and C. M. Payne says *"Our Internationals worked at less cost at Grand Coulee than any trucks we ever had."* Experienced owners have put Internationals through their paces—depend on their judgment when you buy trucks.

INTERNATIONAL HARVESTER

tricts and was told that he would receive 10 per cent of all collections on delinquent accounts. To date it is impossible to say that this change has definitely increased collections in those districts, but there is a slight tendency toward it.

It is believed that the greatest reason for increase in the collections in 1935 over 1934 is the hiring of a man whose only work is to shut off water for those who refuse to pay their bills. Previously, this work was done by the man who made the shut-offs and turn-ons for those who moved. Since there are about 15,000 accounts with the Water Department, one man could not efficiently take care of both the new account service and the discontinuance of service for non-payment.

Deadheads Eliminated

At one time those persons who could not pay water bills were exempted from all charges. Gradually this list expanded to include a group of people who were rewarded in this manner for political favors. When the new charter was put in operation on July 1, 1935, politics were eliminated from the city government of Wheeling. Therefore, a thorough check was made and the number of exemptions on the list was cut from 1,200 to 200 accounts.

Outside of those who had acquired exemption politically, the city's representatives found that a good many of the exempted were able-bodied men who were willing to work but could find nothing to do, and to whom the situation was embarrassing. Men in such circumstances were allowed to work for the Department to pay their delinquent bills. They were used to help set outside meters, to repair main breaks, and whenever extra man power was needed by any Department in the city for a short time. Credit of 30 cents an hour was given them. Of this, 50 per cent was paid by the Water Department, and 50 per cent by the Department for which the work was done.

This system was so successful that it was installed permanently, and all those who have no other occupation and can prove themselves worthy are permitted to work out their bills. Besides keeping up the morale of the deserving, the system helps save money for the city and its inhabitants.

New Street—New Dump—New Trees

University City Profits from Ten-Year Old City Plan and Current Relief Labor

By WALTER A. HEIMBUECHER
City Engineer, University City, Mo.

SOME ten years ago a 100-foot strip of property was dedicated to the public use for street purposes in University City, St. Louis County, Mo., by the owner of a tract of creek bottom-land. This property owner also dedicated a right-of-way for a new creek channel 150 feet distant and parallel to the street. The original channel meandered back and forth through the low land, crossing the dedicated right-of-way in one place and encroaching on it in others. While the street, as dedicated, was located in accordance with our major street plan, and is to be a link in it, no city funds for straightening the creek channel to make the street usable had been available.

New Channel Started

In 1934, the digging of a new channel and the clearing of the right-of-way of the street, was approved as a FERA project. When the clearing began, a great many young elm trees from 1½ to 2 inches in diameter and from 10 to 15 feet high were found. It violated our economic engineering sensibilities to make a brush fire out of what looked like perfectly good transplantable trees. This was discussed with the City Forester and the Park Commissioner. They examined the trees, and both became quite enthusiastic about using them for planting along the streets and in the parks of University City. The City Forester spent some time instructing inexperienced FERA laborers how to dig up trees and transplant them without injury.

This relief labor dug 2,900 trees from the street right-of-way and the new channel right-of-way and from adjacent property where the growth was too thick, and heeled them in in trenches, awaiting favorable weather for planting. We also bought 550 trees, and a total of 1,950 trees were planted by the City Forester on the public streets under another FERA project, 700 were sent to the Park Department and planted in the public parks, and 587 were transplanted to a nursery, because the season became too advanced last spring for planting.

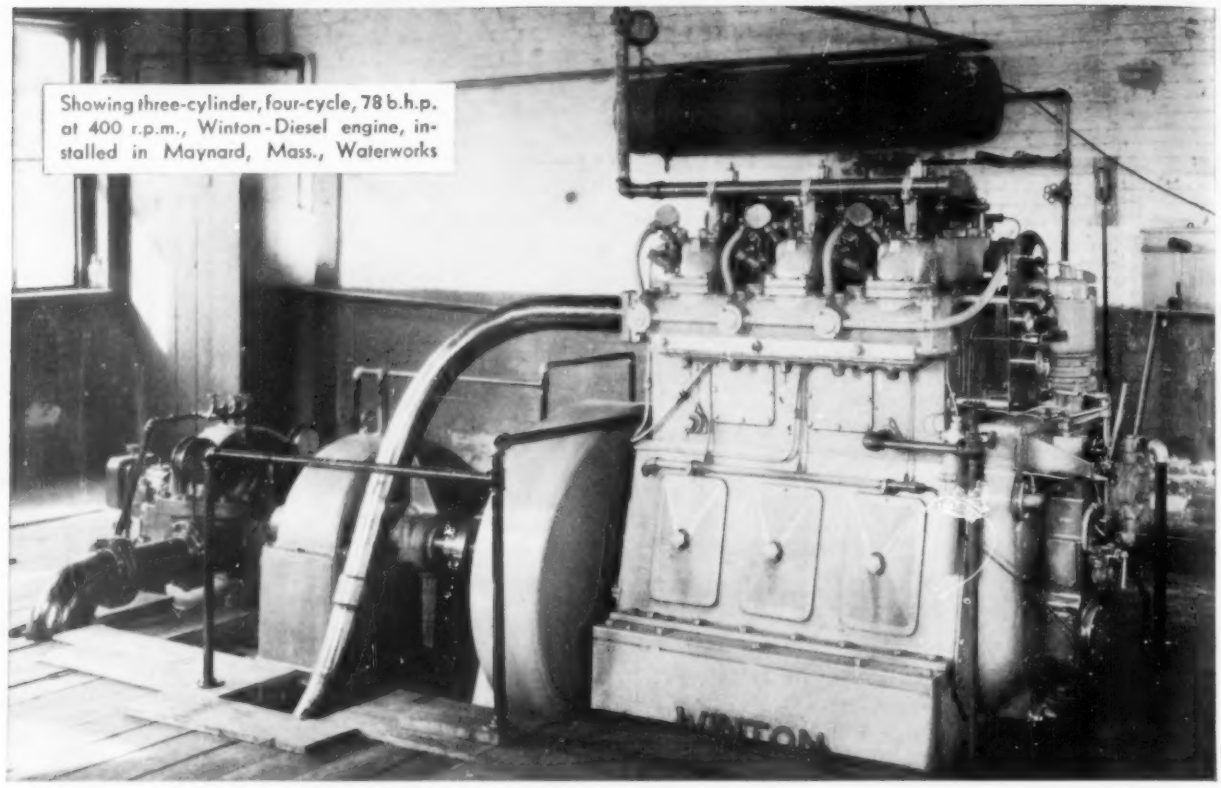
The excavation of the channel was completed in July, 1935, and the old creek is now available for a rubbish dump for the Street Cleaning Division of the Health Department, which formerly had to pay 25 cents per load for dumping in an old, abandoned quarry.

New Assets

The city has some 2,000 trees on its streets that it would not have had otherwise; the Health Department has a free dump, saving the city some $500 a year in dumping charges; and the city has eliminated several stagnant pools that were continually forming in the old creek channel. Last, but not least, a link in the major street system of the city will be available for use in the near future.

All the surveys and engineering work and supervision were carried on under the direction of the Engineering Department, the tree digging and planting on the streets were under the direction of the City Forester, and the tree planting in the city parks, under the direction of the Park Commissioner. Taken as a whole, it is believed that this is one of the most worth-while projects undertaken in University City under FERA.

★ PROVED PERFORMANCE



Showing three-cylinder, four-cycle, 78 b.h.p. at 400 r.p.m., Winton-Diesel engine, installed in Maynard, Mass., Waterworks

WINTON-DIESEL ENGINE PRODUCES 71.5% SAVING AT MAYNARD, MASS. WATERWORKS

Symbol of Economy and Dependability

Waterworks Building at Maynard, Mass.

After highly satisfactory, continuous operation over a two-year period, this Winton installation verified the judgment of city officials in Maynard, Massachusetts. Faced with the necessity of modernizing an out-dated steam pumping station, they were forced to decide upon one of three alternatives: first, a new steam plant; second, Electric power; third, Diesel power. Careful investigation revealed outstanding advantages in economy in favor of Diesel power. Their choice was a Winton installation. The main engine is a three-cylinder, four-cycle, 8½″ x 12″ Winton-Diesel with a rating of 78 b.h.p. at 400 r.p.m.; with a gasoline engine as a standby unit. Each has an operating capacity of 1,000 gallons of water a minute. Thus the station has a 2,000 gallon-per-minute capacity. Both engines are connected to two-stage centrifugal pumps operating at 1365 r.p.m. During 1931 and 1932 steam fuel cost amounted to $13.80 per million gallons. With Winton-Diesel engine operation in 1933 and 1934 this cost dropped to $3.94 per million gallons . . . a saving of 71.5%. Another typical illustration of how Winton-Diesel engines cut costs on industrial and municipal installations in many localities.

WINTON ENGINE CORPORATION

CLEVELAND, OHIO, U. S. A.

Making Refuse Service Self-Supporting

Results of a Study by the West Virginia League of Municipalities

ACCORDING to a report of Hume K. Nowlan, Executive Secretary of the West Virginia League of Municipalities, 19 cities in that state indicated in the early part of 1935 a desire to render refuse collection, removal and disposal service to their public on a fee basis. Of this group, 11 already perform this service in varying degrees of completeness from general tax funds, and 8 wish to inaugurate the service for the first time. Mr. Nowlan prepared the ordinance which is reproduced below, as a suggestion to West Virginia municipalities. It is a composite of the best features of a dozen ordinances now in effect where refuse service is being conducted on a fee basis. It is sufficiently comprehensive and flexible to be made applicable in almost any city desiring, or finding it necessary, to make this service pay its own way.

In many cities refuse service has been so crippled by inadequate revenue available under a tax-limit amendment, as in West Virginia, for general reduction in appropriations, that the health of the public is endangered and extensive improvements are necessary. New incinerators and disposal plants must be built and proper equipment to collect and remove refuse must be acquired at once. Funds for these purposes cannot be obtained by the means available to most cities at present, and a fee system offers the only immediate hope of safeguarding the health and welfare of the public.

Attention is called to the fact that changes in the rate schedules to fit costs and minor alterations to meet peculiar conditions in each locality will be necessary when the model ordinance below is adopted. In our next issue we will publish another article from the fertile mind of Mr. Nowlan on how to institute a fee basis service after the proper ordinance is passed permitting financing of collection and disposal in this manner.

ORDINANCE NO. ——

AN ORDINANCE REGULATING AND CONTROLLING REFUSE COLLECTION, REMOVAL, AND DISPOSAL IN THE CITY OF ————, BY CREATING A DIVISION WITHIN THE MUNICIPAL GOVERNMENT TO RENDER SUCH SERVICE TO THE PUBLIC ON A FEE BASIS; PROVIDING FOR THE REGISTRATION, INSPECTION AND DIRECTION OF SIMILAR SERVICES BY PRIVATE SCAVENGERS; ESTABLISHING A SCHEDULE OF RATES AND CHARGES TO AMORTIZE CAPITAL EXPENDITURES AND SUPPORT THE PUBLIC SERVICE OF REFUSE COLLE-TION, REMOVAL, AND DISPOSAL WHEN RENDERED BY THE CITY; MAKING IT UNLAWFUL TO CAUSE OR TO PERMIT THE ACCUMULATION OF REFUSE, TO STORE, SPREAD, DUMP, OR DISPOSE OF REFUSE EXCEPT IN THE MANNER STIPULATED HEREIN; AND PROVIDING PENALTIES FOR FAILURE TO COMPLY WITH THE REGULATIONS OF THIS ORDINANCE.

Be it ordained by the council of the city of ———— that:

Part One

The following definitions shall be used in interpreting this ordinance—

Refuse.—All sweepings, cleanings, trash, rubbish, litter, garbage, industrial or domestic wastes; organic wastes or residue of animals sold as meat, fruit or other vegetable matter from kitchens, dining rooms, markets, or places dealing in or handling meats, fowls, fruits, grain or vegetables; ashes and cinders; offal, animal excreta, the carcasses of animals, tree or shrub trimmings, dirt, wood, stone, brick, plaster, or materials resulting from the demolition, alteration, or construction of buildings or structures; accumulated waste materials or substances which may become nuisances, some of which are more particularly classified as follows:

(a) *Prepared Garbage.*—Waste material from kitchens, dining rooms, and similar places, from which liquids have been drained and solid matter wrapped in paper.

(b) *Raw Garbage.*—Swill not prepared as in (a).

(c) *Trash.*—Waste material containing no putrid matter.

(d) *Ashes.*—Residue resulting from the combustion of coal, coke, or wood, in domestic, industrial or commercial stoves, furnaces or boilers.

Refuse Collection.—The gathering of refuse containers and their contents from the premises of accessible improved property and loading contents into removal vehicles, and returning containers to place where found after contents have been emptied.

Refuse Removal.—The hauling and transportation of refuse from point of collection to point of disposal.

Refuse Disposal.—The disposition of refuse in accordance with rules and regulations promulgated by the Department of Health.

Refuse Containers.—The "standard ash, trash, and garbage containers" referred to in this ordinance shall meet the following specifications:

(a) *Ash Container.*—Standard containers for the storage of ashes shall be substantially made of metal, shall have a capacity of not less than 10 nor more than 30 gallons, and shall be equipped with at least two carrying handles and a tight-fitting metal cover.

(b) *Trash Container.*—Same as (a) above.

(c) *Garbage Container.*—Standard containers for the storage of garbage shall be substantially made of metal, leak-proof and watertight, shall have a capacity of approximately 5 gallons, and shall be equipped with an adequate carrying bail and a tight-fitting metal cover.

Part Two

Sec. 1. On and after July 1, 1935, there shall be a Division of Sanitation within the Department of Health which shall be adequately supplied with personnel and equipment to properly and satisfactorily carry out the essential public service of collecting, removing, and disposing of refuse produced in the households and places of business of the citizens of ————.

Sec. 2. It shall be unlawful for any person, partnership, firm or corporation, except the city of ————, to engage in or conduct the business of refuse collection, removal or disposal within the corporate limits, without first having secured from the Health Department a certificate of registration as a private scavenger, and having paid an annual registration fee of $25 for each individual or employee acting as a private scavenger, which fee shall be used to defray the cost of examining, inspecting, and supervising private scavengers approved by the Health Department.

Sec. 3. It shall be the duty of the Health Department to designate a qualified person as Sanitation Inspector who shall have the right, and whose duty it shall be, to regularly examine the equipment and the manner in which private scavengers conduct their business, prescribe rules and regulations to be followed by them, and supervise their operations so as to protect the public health and prevent the spread of disease.

Sec. 4. The Sanitation Inspector shall have the right to revoke certificates of registration of any private scavenger at any time if, in the discretion of the Inspector, a scavenger is, through failure or refusal to follow rules and regulations promulgated, or because of unsanitary, inadequate or defective equipment, jeopardizing the health and welfare of the public. From such acts of revocation there shall be no appeal, but the unexpired portion of the annual fee may be returned.

Part Three

Sec. 1. In order to make the service proposed in this ordinance self-supporting, there shall be established a schedule of fees, rates, and charges for standard types of refuse service as follows:

(a) MINIMUM CHARGES FOR STANDARD WEEKLY SERVICE

Prepared garbage and trash only. Subject to adjustment for abnormal volume. 52 service calls per year.

	Per Quarter (in advance)	Per Annum (in advance)
Each family	$2.00	$6.00
Each retail store	5.00	18.00
Each hotel, restaurant, etc.	7.50	28.00
Factories, industries, etc.	10.00	40.00

(b) MINIMUM CHARGES FOR STANDARD DAILY SERVICE

Prepared garbage and trash only. Subject to adjustment for abnormal weight or volume. 6 days per week; 312 service calls per year.

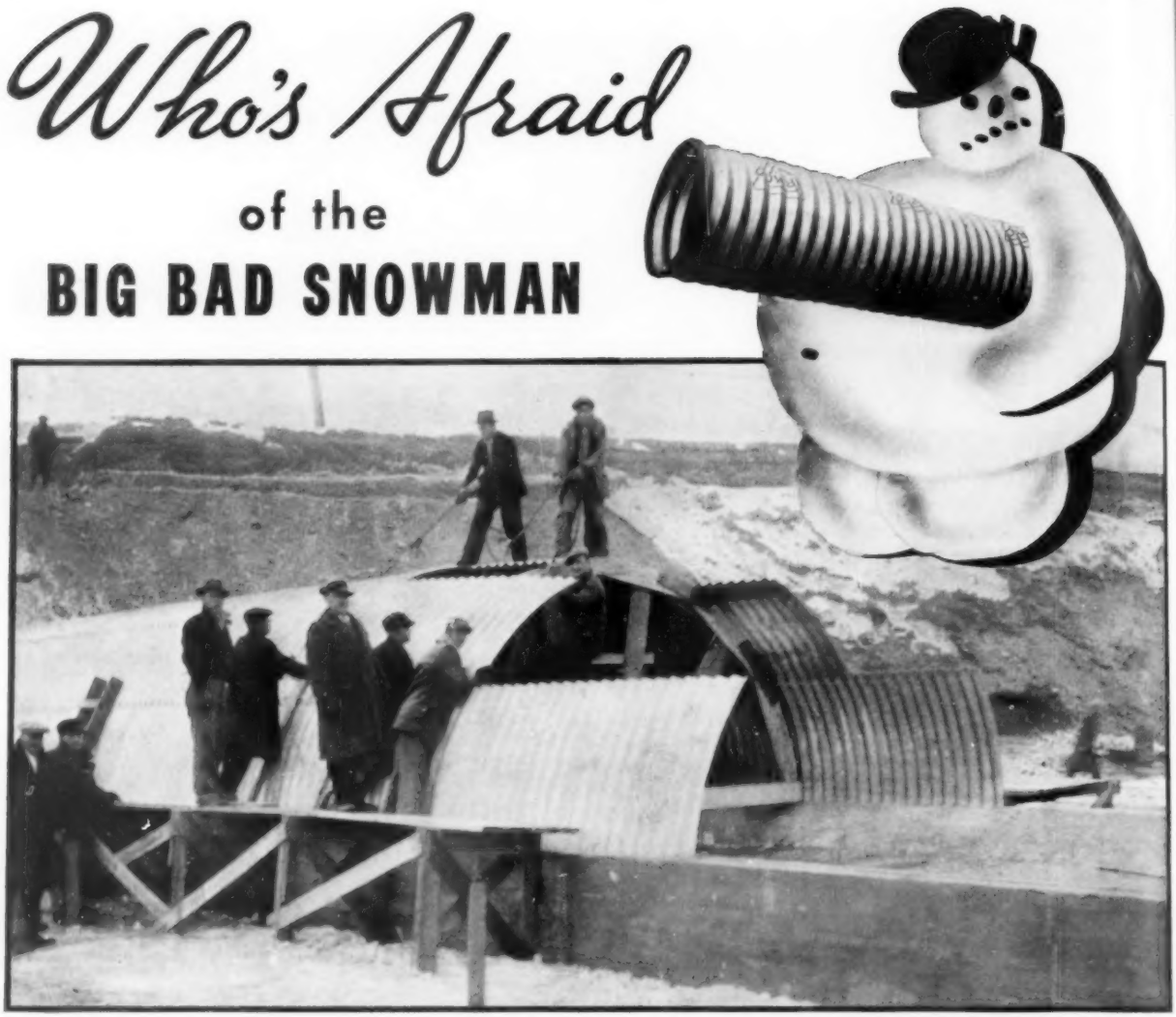
	Per Quarter (in advance)	Per Annum (in advance)
Retail stores, hotels, etc.	$25.00	$75.00
Wholesale houses, factories, etc.	50.00	150.00

(c) Under these schedules the city shall not collect, remove or dispose of the following types of refuse: raw garbage, offal, sewage, animal excreta, the carcasses of animals, tree or shrub trimmings, or materials resulting from the demolition, repair, alteration or erection, of buildings or structures.

(d) A flat charge of $1 shall be collected for each special service call made, and to this charge shall be added such charges as will compensate the city for extra refuse volume or weight involved.

(e) The city shall have the right to deny refuse service to any individual, firm, or corporation whose refuse requirements are sufficiently abnormal or different, in the opinion of the municipal official in charge, as to justify special handling. This shall include those buildings, dwellings, or establishments, requiring carry-out service, or removal from premises locked, barred or fastened, or from property

Who's Afraid of the BIG BAD SNOWMAN



Installing a Multi Plate Arch to extend an existing storm drain in a large northern city. The arch was erected on concrete footings and floor provided with vitreous enamel liner plates. Winter weather failed to halt the work.

DURING recent years municipal engineers have learned by experience that "shutting down for the winter" is not necessary. In fact, there are sound reasons for keeping many kinds of work going on during the winter.

Necessary sewers can be built and ready to carry the peak loads of spring and early summer. Small bridges and culverts built now will enable the backfill to compact during the months of maximum ground moisture. And even more important, winter work provides employment when labor really needs a job.

So put in your sewers, culverts and small bridges this winter. By using Armco Corrugated pipe and Multi Plate, you can expect completed jobs of *known quality*—even under the most severe working conditions. And remember, too, that Armco engineers are always at your service.

ARMCO CULVERT MANUFACTURERS ASSN.
Middletown, Ohio

Play Safe
USE METAL
CORRUGATED PIPE • MULTI PLATE • METAL CRIBBING

ARMCO

☐ Please send me your latest free catalog on Armco MULTI PLATE.

Name.....

Title.....

Street.....

City.....AC-1

not readily accessible to refuse collectors, or in cases where refuse is not found in standard containers. In such cases an independent contract may be entered into based upon rates and service mutually agreed upon.

(f) MINIMUM CHARGES FOR STANDARD ASH SERVICE
Ashes only. Weekly October to April; monthly May to September. 30 service calls annually. Subject to adjustment for volume.

	Per Quarter (in advance)	Per Annum (in advance)
Single-family dwellings	$1.50	$4.50
Apartment houses (per family)	1.00	3.00
Other buildings or industries	by special contract only	

(g) MINIMUM CHARGES FOR INCINERATING REFUSE DELIVERED TO PLANT

Horses	$10 each
Dogs	$1 each
Cats	50c each
Garbage (as defined)	$3 ton
Trash (as defined)	$1.50 ton

Other materials at rates set by disposal plant foreman after inspection and examination of load.

Sec. 2. The revenues derived from these charges shall be placed in the general operating fund of the city but shall be ear-marked and used only for the purposes of:

(a) Amortizing debts contracted for capital outlay in providing plant and equipment necessary to perform the service efficiently.

(b) Establishing a revolving fund adequate to replace obsolete or worn-out plant and equipment and to maintain same in good repair.

(c) Pay the cost of materials and labor, including overhead and administration, necessary to operate the service to public satisfaction.

Sec. 3. Refuse service under this ordinance is intended to be non-profit-making, operated on a self-supporting basis for public benefit and, to that end, the Council shall revise annually the schedule of rates and so adjust them that costs will be distributed as equitably as possible among all citizens on the basis of benefit received. At no time, however, shall rates be continued which are disclosed to be producing less revenue than is required to meet all obligations and costs involved in rendering refuse service to the public.

Part Four

Sec. 1. It shall be unlawful for any individual, company, or corporation to cause or to permit the accumulation of refuse in, about, or upon premises owned, occupied, or used by them, when and if, in the judgment of the Sanitary Inspector, such accumulation is unsightly, unsanitary, or hazardous to the property, life, health, safety, or welfare of the public.

Sec. 2. It shall be unlawful to deliver refuse to or to permit unregistered private scavengers to collect refuse from private property.

Sec. 3. It shall be unlawful for any person, firm or corporation, to dispose of refuse within the corporate limits of the city except in standard domestic incinerators which have been inspected by and approved as safe by authorized representatives of both the Fire and Health Departments.

Sec. 4. It shall be unlawful for any person, firm or corporation to throw, place or scatter any garbage, rubbish, ashes, trash, or other refuse over or upon any premises, street, or alley either public or private, or adjacent thereto; and either with or without the intent to later remove or burn; or to suffer or permit from the accumulation of refuse, any premises owned, occupied or controlled by such person, firm or corporation, to become or remain offensive, unsanitary, unsightly, unsafe to public health or hazardous from fire.

Sec. 5. It shall be unlawful for any individual, firm or corporation to store or permit the storage of refuse on or about their premises, or the premises occupied by them, unless such refuse is kept separately in standard trash, ash and garbage containers as defined in this ordinance.

Sec. 6. It shall be unlawful for any municipal employee to collect or remove, at city expense, any refuse from the premises of any individual, firm, or corporation, or tenant thereof, unless such premises are equipped with standard containers referred to herein, and unless such refuse is kept stored in such containers.

Sec. 7. It shall be unlawful for any person, firm, or corporation, to deposit or store garbage in refuse containers unless such garbage has been prepared for collection, removal and disposal, and complies with the definition of "prepared garbage" as set out in this ordinance.

Part Five

Sec. 1. Any person, firm, or corporation, violating any of the provisions of this ordinance, or failing or refusing to abide by and comply with the rules or regulations promulgated to effectuate the provisions of this ordinance, shall, upon conviction, be fined not less than $5 and no more than $25 and costs, and for second or subsequent offense may be confined in the city jail not exceeding 3 days in addition to the fine.

Sec. 2. Each succeeding day a violation of this ordinance exists shall constitute a new and separate offense.

Sec. 3. All ordinances, or parts of ordinances, in conflict herewith are hereby repealed.

Sec. 4. This ordinance shall become effective ——— days from passage

Sewer-Rental Laws

Abstracts from Revenue Bond Acts and Reports on Sewer-Rental Situations in The Municipal Index

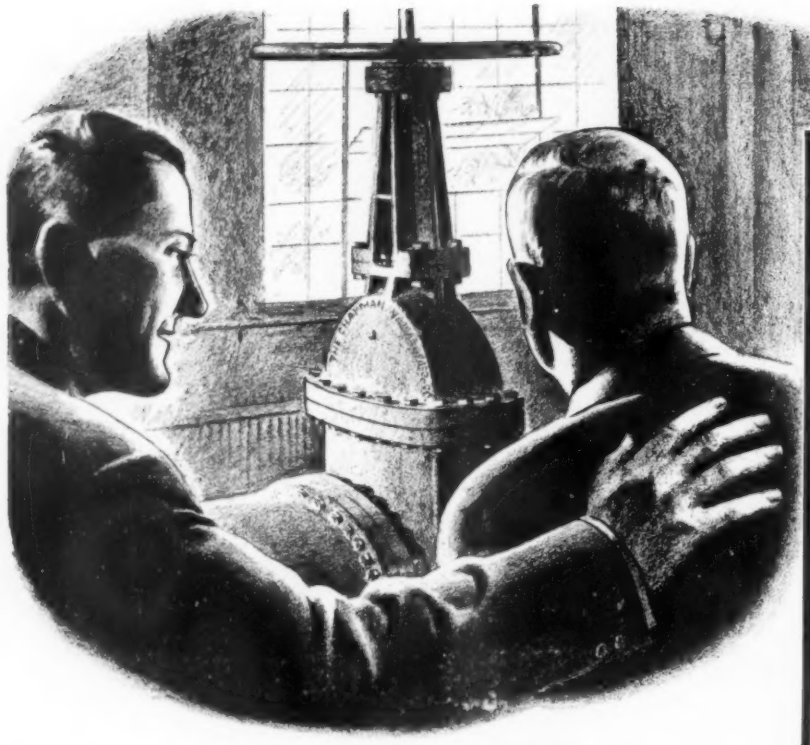
THE 1936 issue of The Municipal Index contains a detailed study of the revenue bond acts in the 33 states which have enabling acts, and reports of all 48 states, showing what advantage has been taken of these acts by cities to finance the construction, operation and maintenance of sewerage systems and sewage-treatment plants by service charges.

The following table shows the status of revenue bond acts and other enabling acts in the different states, the dates when the acts became effective, and whether or not cities have taken advantage of the opportunity offered for financing bonds by service charges. In the case of states with no enabling acts, the table shows whether cities are charging sewer rentals under some other authority.

Examination of this table shows that 32 states now have enabling acts and in 24 of these states cities are taking advantage of the acts and charging sewer rentals either for the retiring of bonds for the construction of sewerage systems and sewage-treatment plants, or for the maintenance and operation of these structures, or both. Of the 17 states, including the District of Columbia, which have no enabling acts, there are 9 states in which cities are charging sewer rental either through special charter provisions or because of their interpretation of the general law of the state. In some cases no court decision has been rendered, so that cities making service charges without a state enabling act are not sure that they have a legal basis for such billing.

	Enabling Act	Date Passed	Are Cities Charging Sewer Rentals: With State Act	Without State Act
Alabama	Yes	1933	Yes	Act
Arizona	No	....	....	Yes
Arkansas	Yes	1933	Yes	....
California	Yes	1933	No	....
Colorado	No	....	....	Yes
Connecticut	Yes	1931	No	Yes [a]
Delaware	No	....	....	....
Florida	Yes	1935	Yes	....
Georgia	No	....	....	Yes
Idaho	No	....	....	No
Illinois	Yes	1933, 1934	Yes	....
Indiana	Yes	1932, 1935	Yes	....
Iowa	Yes	1931, 1933	Yes	....
Kansas	Yes	1923, 1933	?	....
Kentucky	Yes	1926	Yes	....
Louisiana	Yes	1934	Yes	....
Maine	Yes	1933	No	....
Maryland	Yes	1927	Yes	....
Massachusetts	Yes	[3]	Yes	....
Michigan	Yes	1927, 1929	Yes	....
Minnesota	Yes	1935	No	....
Mississippi	Yes	1935	Yes	....
Missouri	No	....	....	No
Montana	Yes	1933	No	....
Nebraska	No	....	No	....
Nevada	Yes	1919	No	....
New Hampshire	Yes	1933	Yes	....
New Jersey	Yes	1917	Yes	....
New Mexico	No	....	....	Yes
New York	Yes	1929	No	....
North Carolina	Yes	1933	Yes	....
North Dakota	Yes	1933	Yes	....
Ohio	Yes	1933	Yes	....
Oklahoma	No	....	....	Yes
Oregon	Yes	1933	Yes	....
Pennsylvania	Yes	1935	Yes	....
Rhode Island	No	....	....	No
South Carolina	No	....	....	No
South Dakota	No	....	....	....
Tennessee	Yes	1933, 1935	Yes	Yes [4]
Texas	No	....	....	Yes
Utah	No	....	....	....
Vermont	No	....	....	....
Virginia	No	....	....	Yes [5]
Washington	Yes	1909	Yes	....
West Virginia	Yes	1933	Yes	....
Wisconsin	Yes	1929, 1933	Yes	....
Wyoming	Yes	1935	....	....
District of Columbia	No	....	....	No

[a] Manchester purchased a private system and still collects rentals.
[1] Georgetown had Special Act passed in 1931.
[2] Ellsworth only 3d class city using rentals. Wichita has Special Law.
[3] Authority given by General Laws, annual assessments declared constitutional in 1901.
[4] Dayton charged rentals for several years before Act was passed.
[5] Through charter provisions.



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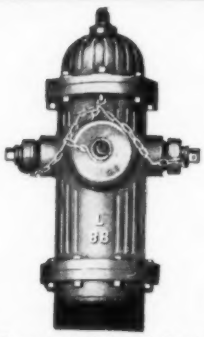
You set up lasting proof of your sound judgment when you build with Chapman Valves.

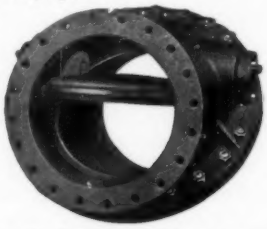
From wheel-nut to flanges, Chapman Valves are designed for the special requirements of waterworks and sewage disposal plant service. Sound castings and individual machining carry out the special Chapman design—build into each valve the long-wearing qualities that will cut your maintenance costs for the next thirty, forty, fifty years.

And with a *consistent* Chapman job you keep the "weak links" out of your waterworks and sewage disposal projects. The Chapman line is *complete*: globe, gate and check valves—automatic cone valves—altitude control valves—sluice gates—hydrants—brass goods—shear gates—foot, flap and mud valves—floorstands and every type of operating mechanism. All have the long-life, cost-cutting features that have made Chapman famous. Send for bulletin.



Chapman Compression Fire Hydrants are self-draining, freeze-proof, low in maintenance and self-sealing in case of traffic accidents.

Chapman Floorstands provide a proven modern method of operating gate valves and sluice gates either electrically or manually. Motor-operated floorstands are ideally suited for control of large gates.



Chapman Non-Slam Check Valves close quickly, quietly, and eliminate water hammer. They increase pipe line capacities . . . reduce head loss as much as 75%, and effect substantial power savings.

Chapman List 61 Gate Valves have strong iron bodies . . . heavy hard bronze seat rings and disc faces that can be economically removed and renewed. They exceed A. W. W. A. specifications.

The CHAPMAN VALVE MANUFACTURING COMPANY — *Indian Orchard, Mass.*

Street Maintenance on Badly Bent Budgets

Street Officials Report on 1935 Work and 1936 Prospects

Davenport, Iowa

THE streets of Davenport generally are in good condition so far as they are being kept clean. Structurally, the newer brick paving up to fifteen years old is in good condition. In many cases, the old brick paving which was laid on a sand bed has become very uneven. Much of the asphalt paving is badly cracked. This is mainly due to the faulty specifications, which have now been corrected.

In some cases we have taken the old asphalt, reheated it and built it up with fresh asphalt to re-lay for patching. The city is not properly equipped to do this well. We have used a paving binder consisting of asphalt, sand, and pea gravel. This is much cheaper than cold patch asphalt and does the work very satisfactorily.

All labor is performed by our own forces, for the local FERA headquarters advised the city that it could not furnish help for maintenance work. Plans for 1936 are rather indefinite as yet.

RALPH S. GRAHAM,
Superintendent, Department of Construction and Public Works.

New Castle, Ind.

A SEMI-CONSTRUCTION program has been put into operation in New Castle to cut down the cost of maintenance of streets during the period of low taxes. Instead of using all the gasoline money for maintenance we have put in considerable black top construction over a period of two years. By black top, I mean the cheaper type of asphalt and tar penetration.

The maintenance force was cut considerably under the first year of low taxes, and it was necessary to work out a program to keep the streets in shape for public use. A definite number of streets have been selected each year to be penetrated. This is our second year, and we have at present 13½ miles of former gravel streets that are now dustless and in most cases mudless. This is all done with gasoline tax money, and we hope to complete the remainder of the streets next year, eliminating gravel streets entirely from the city. The maintenance cost on this type of work is very little, for the second and third coats are applied the second and third year after the first coat and they cost about one-half the price of the original coat. In this way relief labor is used, but this construction method does not require a great amount of labor. We have benefited considerably by using relief labor to repair sidewalks, cut corners on the streets, and build grades and drainage.

ERNEST L. GUYER,
City Engineer.

Richmond, Ind., and several other cities are maintaining asphalt streets by cleaning the surface, applying a very thin layer of crushed gravel or stone chips, and then about 0.2-gallon per square yard of emulsified asphalt, followed by another layer of chips, the two layers amounting to about 5 pounds per square yard. After rolling and permitting the street to set up for about 10 hours, it is opened to traffic.

Watertown, Wis.

THE streets of Watertown are in fair-to-good condition, depending upon the importance of the streets. All of them are being maintained in at least all-weather condition. Concrete pavements are being maintained by pouring the cracks, building up the shoulders, and covering bad spots in the pavement with a skin patch of asphaltic material.

Brick pavements, of which we have quite a number, are maintained mostly by re-laying and turning the brick in the worst spots, and the lesser places are taken care of by skin-patching, as with concrete.

Nearly all the gravel and dirt roads are now being maintained by applications of a heavy road oil, which has been found quite successful for the amount of money spent; in fact, we feel that this is the most economical sort of maintenance, in that it saves a lot of work in the course of a year. A schedule is made out at the beginning of each year, and it is the aim to treat each street at intervals of two or three years. Spots which develop during the course of a year are cold-patched with a mixture of road gravel and road oil. Last year about 30,000 gallons of road oil was applied.

All the street work is being done with regular city forces, supplemented at times with extra labor. No relief labor, as a class, has been used.

Plans for 1936 contemplate about the same amount of work, perhaps a little more, than in past years. Application has been made to the State Highway Commission for the improvement of some of the through highways. The city is fortunate in having a Street Commissioner who takes a keen interest in the work.

P. L. SCHROEDER,
City Engineer.

New Brunswick, N. J.

WE think our streets are in good condition. Nearly every street has been paved and is in good condition for travel. This year the street repair has been placed in the Engineering Department, and we have been looking after the maintenance.

We have a million square yards of pavement to maintain, and the appropriation has been cut to $20,000. This gives us 2 cents per square yard to spend for this purpose. Most of the pavements are of sheet asphalt, and we have found that we can repair it with Colprovia, using our own forces and equipment. This artificial mixture resembles the natural product rock asphalt. It can be spread cold and rolled or tamped, and seems to stay put without creeping. The work has been done with our own gang, and

FROST CAN *Not* HEAVE
MATHEWS HYDRANTS

The entire protection case (drawn in heavy white) rests loose in the elbow. Frost-heaved ground can lift only the outer protection case, putting no strain on elbow, main, or hydrant.

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Makers of SAND-SPUN PIPE, the lighter, stronger pipe, centrifugally cast in sand molds.

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relief workers have not been used, since it requires considerable skill to do a satisfactory job.

For 1936, we are putting in a strong plea for a larger appropriation, for the amount allotted for 1935 is inadequate and we think we have made a little go a long way.

ASHER ATKINSON,
City Engineer.

Bradford, Pa., not having the benefit of local asphalt plants, has adopted the segmental type of pavement for most of its streets. They find that brick or asphalt blocks can be maintained with inexpensive equipment and without high-priced personnel.

Tulsa, Okla.

THE streets of Tulsa are in fair condition. We have been especially fortunate, considering the small amount of money that has been available in the past two years for street maintenance. A very high type of paving construction was used generally throughout the city. The first streets in Tulsa were paved in 1905, and one or two of them have been resurfaced since that time. The Street Department has distributed its energies very creditably during the past few years in getting the repair work done as quickly as possible after a break in the pavement and before the failure spread. The regular city forces have been used exclusively on all street maintenance. Relief labor has been used only in correcting drainage conditions on unpaved streets, cleaning existing side ditches and digging new ones on practically all the dirt streets.

Plans for 1936 include increased activities and additional resurfacing, providing the funds permit. The income for this work is derived exclusively from automobile tax license and penalties and from penalties on ad valorem taxes, and accordingly there can be considerable fluctuation in our income. It has been a battle to do the best we could with that which we had to use. As there is no regular budget allowance for any street work, it can readily be seen that under present conditions it is extremely hard to formulate a definite long-time program with certainty of completion, owing to the irregularity and nonpayment of taxes.

M. C. SHIBLEY,
City Engineer.

Canton, Ill.

THERE are approximately 40 miles of earth and shale-surfaced streets in Canton, 38 miles of unpaved alleys, 11 miles of brick pavement, 1/6-mile of concrete alleys and 7 miles of concrete pavement. About one-half of the earth streets are surfaced with "red-dog," a local material formed by the natural burning of slack from the local coal mines. This material has been applied by the city with the help of CWA and work relief labor, the property owners contributing $10 per block for material. The material is traffic-bound and forms a hard, smooth, waterproof surface that does not ravel, corrugate, or become pitted, as do streets surfaced with gravel, and requires very little maintenance.

Most of the brick streets are forty years old and are in need of widening and resurfacing, or replacement. Their poor condition is due to the great number of openings made by city and local utilities. The concrete streets are between five and ten years old and are in good condition. Their maintenance consists of filling the cracks with asphalt and cleaning.

The streets, except brick pavements, are in good condition as a result of CWA and work relief labor projects. From May, 1934, to September, 1935, the sum of $24,487.36 was contributed to street improvement and maintenance by the Illinois Emergency Relief Commission. The city contributed $5,024.00 to this work.

There are no definite plans for street improvement in the coming year. About $12,000 of motor fuel tax funds will be available next spring for street improvements, but the City Council has made no decision as to its expenditure.

H. T. GIBBONS,
City Engineer.

Pontiac, Mich.

THE streets of Pontiac are not in very good condition. For the past five "depression" years street maintenance budgets have been reduced consistently, and in 1934 the citizens of Pontiac voted to accept the "Michigan Fifteen Mill Tax Limitation Law." This law was passed by the State Legislature in 1934 and limits all state, county, school and city operating taxes in any year to 15 mills per dollar of valuation. Of this 15 mills, the city receives only 5½ mills, which means that our already low operating budgets, due to decreased valuations, were reduced from 13 mills to 5½ mills in 1935.

There is a total of 315 miles of streets, comprised of 57 miles of all types of pavements, and 258 miles of gravel streets. Many of these pavements are old and narrow, were not designed for present-day traffic and loads, and should have been repaved years ago. These now constitute a serious maintenance problem. The sum of $15,075 was allowed in the 1935 budget for the maintenance of paved streets, and $13,200 for unpaved streets, with only $3,000 for new gravel for unpaved streets.

All work has been done with regular city forces in the past, since relief labor has not been permitted in this state on maintenance work. We expect the budget to be still lower in 1936, but hope for some help from WPA projects and relief labor. Not much planning can be done without assurance of sufficient funds, but we hope to do some bituminous treatment work on gravel streets by special assessment.

LEWIS M. WRENN,
City Engineer.

Uniontown, Pa.

IN Uniontown there are many streets that have never been improved, and the question of maintenance has been a serious one. On the dirt streets, the problem has been partly solved by using a grader, and spreading what is locally known as "red dog," which is obtained from mine dumps that have been burned, and, after rolling, using asphaltic road oil at the rate of 1/3-gallon per square yard. This oil has as high a content of asphalt as will permit it to penetrate the surface. After two years of this treatment, a mat was formed on some of the streets that gave a fairly good surface; on others, many pot-holes developed, due to an unstable base. We do not consider this type of treatment of much value except to eliminate dust, for the treatment must be made every year.

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UNQUESTIONED ESTABLISHED PERFORMANCE

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"AUTOMATIC VALVES"

Fig. 32-A

Altitude Control—Automatic, air and water cushioned. These Valves will hold water in elevated storage at exact predetermined level. No floats, long connections or complicated fixtures needed. Operation is by static head. Places control in accessible position, and is unfailing in operation.

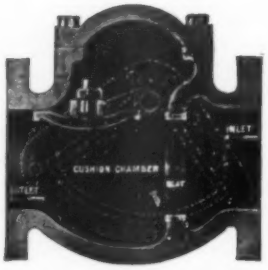

Fig. 25

Cushioned Check Valve

The balanced design and full area reduces water pumping costs 75%. Thoroughly cushioned to overcome water hammer or shock. May be furnished with hand lever control.

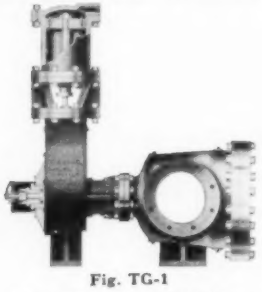

Fig. TG-1

Thru-Flow Cone Valves

Valve is always unseated axially, rotated without rub or friction and reseated axially in either position; all in one operating movement and drop tight in both open and closed positions. Automatic controls are available for operating the valve as an altitude control, check valve; reducing valve; relief valve, etc. Furnished in sizes 6 to 72 inches.

Fig. 74

Water Strainer

The most efficient strainer for insuring clean water for water works, railroads, industrial plants and processing service. Easy to clean and with large area. Heavy and extra heavy types.

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1329 FULTON BLDG. PITTSBURGH, PA.

EXPANDING

ROOT CUTTER AND SEWER CLEANER

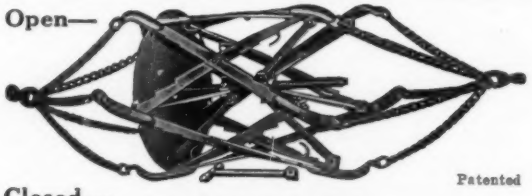
Works splendidly and is a valuable addition to our equipment.

It will materially reduce our sewer cleaning expense.

J. W. PARRY, Village Manager
Birmingham, Michigan

Adjusted in 30 Seconds to Fit Any Sewers from 6 to 30 Inches

Open—



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Closed—

Write for catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. Nappanee, Ind.

UNIVERSAL CONCRETE PIPE for Sewers

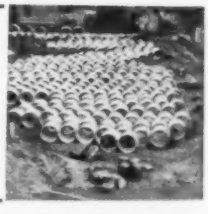
Gives Employment to Local Labor

If a large quantity of pipe is needed, UNIVERSAL installs a temporary plant in your City, employing local labor. If the quantity desired is small, it can be shipped promptly from one of our six permanent plants.

Send list of quantities and sizes needed. We will submit estimates without obligation.

UNIVERSAL CONCRETE PIPE CO.

297 High Street Columbus, Ohio



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on any kind of municipal equipment or supplies? See pages 19 and 20 for a list of valuable booklets to be had for the asking.

Under CWA and RWD the city has improved a few streets by grading, laying a 6-inch course of broken stone or a 10-inch course of telford, and after napping and rolling to a proper crown and grade, placing a waterbound macadam surface, which is permitted to stand under traffic for several months. Then a coal tar and chip surface is applied in two applications, using ½-gallon of tar and about 30 pounds of ⅛- to ¼-inch chips for the first coat, and after rolling, about ¼-gallon of tar and 12 to 15 pounds of chips for the second coat. After rolling, traffic is permitted on the surface. This makes a very good cheap road, for all labor and some trucking are furnished by the relief agencies. All regular maintenance work is done by the regular city forces. Relief labor was used on the telford macadam streets for construction.

There are some brick streets in Uniontown that have been down for twenty-five to thirty-five years and are badly worn and very rough. We have just completed resurfacing about 20,000 square yards on the main street, using 1-inch of Interaco stone tread as a base and to fill depressions, and finishing with ¾-inch of Downard-rock surface. These materials are furnished by the Interstate Amiesite Co. from a plant at Dunbar, Pa., about ten miles from Uniontown.

An Adnun black top paver was used to spread both materials, resulting in a very even and smooth surface. The Downard-rock wearing course is particularly satisfactory, being easy to handle, and rolls out to a smooth non-skid surface over which traffic can be turned in a few hours after placing, and in fact, where necessary, immediately after rolling.

Tar penetration resurfacing on other brick streets has been used, but while this method gave good results, there are difficulties to overcome that do not appear in the method described above. It is felt that at last a way of salvaging worn brick or concrete streets has been found that is within the budget of the average municipality.

WILBUR L. DUNN,
City Engineer.

La Junta, Colo.

THE city of La Junta has a total of 40 miles of streets which are now in better condition than at any time in the past. A city work relief program for the streets was begun in November, 1930. Grades were cut down and fills made where necessary. Thousands of yards of limestone gravel were used in surfacing. This method was continued until the summer of 1934, when oil paving was begun. At present 115 blocks are oil paved, and at least 75 more have been petitioned to be paved. A total of 30 blocks are paved with concrete. The maintenance of gravel-surfaced streets was unsatisfactory. One city sprinkler was kept busy but did not keep the dust down. The maintenance costs of dragging and blading were heavy. The sprinkler is now used only in the preparation of the streets for oil paving or for flushing the pavement in the business section. The oil paving has required very little maintenance so far and should cost less per year than sprinkling with water. There will be an increased cost for cleaning, for with the gravel surface owners do not expect much in the way of clean streets and gutters. As soon as paving is completed, the situation is changed, for the street takes on a new appearance and the property owner expects his street to be cleaned regularly.

Curbing is now built in the entire paving district and is being built in advance of the oil paving. Concrete gutters are not laid in the residence sections, but the oil paving is continued to the curb.

For the past five years an average of fifty men per day have been used from the relief rolls to carry on grading, surfacing, oil paving and curbing. The following WPA program has been approved and is now under way to continue through 1936: 40 men to grade and prepare streets for paving and sidewalks for twelve months; 35 men to build concrete curbing and sidewalks for six months; and 40 men to lay oil paving for six months.

The building of concrete curbing and following-up with oil paving has solved the problem for our city in keeping the streets in good condition, preventing a dust nuisance, and at the same time lowering the costs of street maintenance.

GEORGE E. HINE,
City Engineer.

Bronxville, N. Y.

IN general, the streets throughout the village of Bronxville, Westchester County, are in reasonably good condition due principally to general maintenance each year. It has been standard practice to make repairs each spring and fall, consisting of patching large holes or areas of the pavement which are beginning to break up. The procedure has been to cut out all bad spots in the pavement and resurface these with some kind of pre-mixed asphaltic concrete, in the case of bituminous macadam. Concrete pavements have required no extensive repairs. The maintenance program has resulted in keeping the existing streets in usable condition and preserving the pavement from rapid deterioration. It has been necessary to seal some bituminous macadam streets after patching, but such procedure has not been general.

No more than this general type of maintenance has been carried out under funds provided in the budget. Considerable resurfacing of streets has been carried on, however, with relief labor and special appropriations for the purchase of materials. The projects carried on with relief labor have resulted in the resurfacing of approximately three miles of streets. The reconstructed streets were all of bituminous macadam and were rapidly going to pieces through enforced lack of maintenance. No effort was made to change established street lines, and our first step was to install all new curb along the old lines, with the elimination of concave stone gutters if such existed along the street. Following the installation of the curb, the old road surface was scarified, spread to a predetermined cross-section and rolled to serve as a base for the application of a new top material.

The most economical way to have a good pavement surface is to keep the small holes repaired and to surface-treat a pavement before it has deteriorated to the point that expensive repairs are necessary.

During 1934, pre-mixed asphaltic concrete was spread in two courses over a prepared subgrade as described above, with very satisfactory results. In 1935, in an effort to accomplish more surfacing with no larger expenditure, the program was varied. The new curb was set, stone gutters eliminated and the road surface from curb to curb

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brought to a predetermined cross-section by a wedge course of bituminous macadam along the curb. The center portion of the road was carefully sealed by the application of bituminous material and crushed stone, after which the entire surface was treated with bituminous material, covered with trap-rock screenings and thoroughly rolled. The appearance of the streets treated in this way is pleasing, and there is no reason to expect that results will not be entirely satisfactory. In the performance of this work as many as fifty relief men have been employed at one time.

For 1936, we plan to follow the same procedure as in the past. The installation of new curb will be carried on through the winter along designated streets which will later be resurfaced. The extent to which this work will be carried on next year can not be determined at this time.

RUDOLPH N. MILLER,
Village Engineer.

Bedford, Ind.

BEDFORD, a city of between 13,000 and 14,000 population, situated in the heart of the Indiana limestone belt in southern Indiana, has good reason to be proud of its streets. At present there are 14.9 miles of concrete, 2 miles of asphalt, 2.8 miles of brick, 1.6 miles of asphalt on brick base, and 2 miles of rock asphalt and sheet asphalt on macadam base. In addition to this, at the present time approximately 6 miles of macadam roads are being resurfaced with tar TM2 and crushed stone. There are about 175 blocks of secondary streets that have been oiled in the past, and we hope that in the next year these streets will also be resurfaced with TM2 and crushed stone.

In the past five years practically all the work that has been done has been financed by the regular gasoline tax appropriation, using the city's own regular forces. Last year, however, relief labor was used to put down approximately 30 blocks of tar resurface. At present there is a project operating that calls for tar resurface on 60 blocks, which is being done in large part by relief labor, using the regular city forces in a supervisory capacity and doing the machine work only.

Our method of resurfacing is as follows: Tar, grade TM2, is first applied as lightly as possible to the old brick or to the oiled mat surfaces of the old macadam roads; crushed stone, which we are producing with relief labor, is next applied with dump-trucks and spread to the proper depth with a grader and tractor. Then the tar is applied and the stone is windrowed with the blade until thoroughly mixed. After this, it is again leveled and rolled, and then permitted to set up. Then the final seal coat of tar is applied, and a coat of stone chips or sand as a blotter course completes the work. Our experience has been that this method gives a very satisfactory secondary street, requiring little attention, with the exception of a new seal coat about every two years.

The chief reason for the poor condition of many city streets is the diversion of funds normally used for maintenance. Most cities have carried on their maintenance work, although curtailed, in such a way as to take care of the work conditions satisfactorily.

In addition to this work, we have built approximately eight blocks of new macadam streets with FERA and WPA labor and contemplate widening four blocks of old brick within the next year. We have also done considerable work on sidewalk and curb repair and straightening, and will continue this into 1936.

HENRY E. PEARSON,
City Civil Engineer.

Darien, Conn.

THE streets in the town of Darien are in very good condition; in fact, they are in better condition than at any previous time. There is a larger percentage of oil-surface roads, and most of these have been treated with either asphalt or tar during the summer. We use from ¼- to 2/3-gallon per square yard of bituminous material, cover with a good grade of coarse sand, and then hone the road with a three-blade drag, which fills up the depressions and cuts off the high spots. We have been doing this for several years and have acquired a very smooth riding surface on this type of road.

There are a few miles of bituminous macadam pavement, which is treated in a similar manner when the pavement shows need for it. Concrete roads are maintained each year by pouring the cracks and joints with a suitable asphalt. Most of the shoulders on the bituminous macadam and concrete roads are treated with asphalt or tar, which is an aid in preventing water from getting under the pavements.

The gravel roads are bladed with a grader as occasion demands and are treated with calcium chloride to eliminate the dust nuisance. Practically all the work has been done with regular town forces; occasionally, however, they are supplemented with relief laborers. We have made work for laborers to take care of all able-bodied men on the relief rolls. This type of work in the main consists of grading and preparing the drainage of highways.

Plans for 1936 are about the same as in 1935. No new construction is contemplated and every effort is being made to keep the budget as low as possible.

WALTER A. BATES,
Superintendent of Highways and Bridges.

Wheeling, West Va.

OUR streets in the business district and all main thoroughfares are in good condition owing to the fact that from 1919 to 1925 we spent about $2,000,000 repaving them. Since that time very little repaving has been done, and our suburban districts are in poor condition.

We have used relief labor at all times up to March 1, 1935, the relief payrolls amounting to about $4,000 per month. Since March we have been using men that owe the city for water service, as the water plant is municipally owned, and also those indebted to the city for liens, and for old city taxes which were formerly collected by the City Treasurer.

The land area of Wheeling is about 9 square miles. A budget of $60,000 is used for all purposes, including street and sewer maintenance, labor, tools, and supplies, repair and painting of all city-owned buildings, and seven bridges. We salvage old buildings, and build walks, manholes, and catch-basins out of this free material.

Taxpayers asking for street improvements must furnish and pay for the material required for the construction of the type of street they want, and the city installs it.

We have had 27 projects approved and allotments made amounting to $1,394,367; 12 projects have been started.

H. A. CONRAD,
City Engineer.

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On the basis of these requirements, the Kennedy SAFETOP Fire Hydrant is rapidly becoming the standard of the country. The Kennedy SAFETOP meets every requirement of strength, safety and economy as well as instant readiness and reliability in service. Moreover, this fire hydrant has actually undergone collision demonstrations to substantiate every claim made for it.

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Hackensack, N. J.

THE maintenance of the streets of Hackensack has presented a rather serious problem, chiefly because maintenance work in the past was not systematically planned and was not completed properly on the streets where the shoulders are not paved. The practice of paving a comparatively narrow roadway in the center of the street and providing curbs has left many miles of street within the city in an unfinished and deplorable condition.

There are 74.3 miles of streets in the city of Hackensack, 10 miles of which are maintained by the county of Bergen, and 1.46 miles by the state. The type of pavement and the total number of miles of each type, are as follows:

Maintained by the city—		
Asphalt	7.67	miles
Penetration macadam	40.46	"
Concrete	0.31	"
Granite block	1.14	"
Macadam	1.94	"
Unimproved	8.77	"
Streets mapped (not open)	2.55	"
Total	62.84	miles
Maintained by the county—		
Asphalt	10.00	miles
Maintained by the state—		
Concrete	1.46	"
Grand total	74.30	miles

The general maintenance work, covering approximately 60.29 miles, comprises principally grading, patching holes, and paving shoulders. No detailed report can be given of this except to say that streets are maintained as economically as possible.

The principal cost of maintenance thus far is that of completing the shoulders on various streets. This work should really be classed as capital outlay, but for accounting purposes and because of the fact that these streets are considered as completed, it is classed as maintenance.

As a typical example, the detailed cost of the improvement on Summit Avenue, from Hamilton Place to Elm Avenue, is given:

Item	Unit Cost	Total Cost
840 cu. yds. 1½" stone @	$2.40	$2,016.00
126 cu. yds. ¾" stone @	2.65	333.90
8 cu. yds. ¾" stone @	2.35	18.80
10 cu. yds. ⅜" stone @	2.50	25.00
84 cu. yds. ⅜" stone @	2.85	239.40
19,900 gals. asphalt @	0.0559	1,112.41
Demurrage—1 day @	2.00	2.00
18 scarifier teeth sharpened		13.50
Roller hire		193.69
Gasoline		63.08
Oil		3.17
Fuel oil		82.50
Labor		1,442.61
Supervision		138.25
Macasphalt—1½ tons	9.00	13.50
Engineering		21.60
Total cost		$5,719.41
Total square yards of pavement		8,882.0
Cost per square yard		$0.644

Note: Included in the above is the cost of resetting 800 lineal feet of bluestone curb.

These low costs are made possible by the fact that the city now does all its own work by day labor. This, of course, necesitates the purchase of equipment. The city now owns a bituminous distributor, a tank-car heater, a power shovel, a concrete mixer, curb and gutter forms, and other necessary equipment for this class of work.

WILDER M. RICH,
City Manager.

Middletown, Ohio

WHILE there are many exceptions, the streets of Middletown are mostly in good condition. Maintenance is done exclusively with regular city forces. The method found most satisfactory is to excavate all holes in pavements to a depth of about 4 inches, fill them with broken stone graded from 1½-inch to ¼-inch, penetrate the courses with a total of about 2½ gallons of asphalt emulsion to the square yard in three applications, and roll with a 5-ton roller. After the final application of emulsion, the surface is given a top dressing of stone chips, and again rolled. Minor holes and cuts are filled with premixed aggregate and asphalt cut-back prepared at the city yard and hauled out as needed.

Many cities are reducing maintenance costs by repaving with Federal funds and relief labor financed by WPA. The truth of the matter is that lack of proper maintenance has shortened the economic life of many streets and hastened the time when reconstruction was necessary.

Lack of funds has prevented the undertaking of any street resurfacing with city forces. A project is now under way, however, for surfacing the recently abandoned Miami and Erie Canal. The old canal bed has been filled and eventually will become a through-traffic boulevard, with a 56-foot roadway between the north-and-south corporation lines. This work is being done exclusively with relief labor.

In the preparation of the surface of the new boulevard, a new method has been evolved. After the subgrade has been brought to proper elevation, a 4-inch layer of pit-run gravel is laid and shaped. Over this is spread asphalt cut-back or asphalt emulsion, a total of 1.5 gallons to the square yard, in three applications of 0.5-gallon each. Each application of the binder is followed by thorough discing with a multiple disc harrow. Discing is continued in each case until a uniform color is obtained. After the final discing, the surface is again brought to proper contour with a blade, after which the surface is rolled with a 10-ton roller. This stabilized surface now being applied is intended to serve only for two years, after which it will become the base for a permanent wearing surface.

Some WPA projects have also been initiated for regrading unpaved streets and alleys, using pit-run gravel for surfacing as required. Relief labor will be used on this work. Plans for 1936 call only for continuation of the work as outlined above.

L. P. DIEFENBACH,
City Engineer.

Mayors' Committee on Federal Legislation

AS President of the United States Conference of Mayors, Mayor F. H. LaGuardia of New York has appointed the Mayors of fourteen cities as an advisory board on Federal legislation affecting municipalities. The list comprises:

Watkins Overton, Memphis, Tenn., Chairman
Harold H. Burton, Cleveland, Ohio
Joseph K. Carson, Jr., Portland, Ore.
R. E. L. Clancy, Tampa, Fla.
Frank Couzens, Detroit, Mich.
Harry D. Durst, Springfield, Mo.
Meyer C. Ellenstein, Newark, N. J.
Thomas Gamble, Savannah, Ga.
Oscar F. Holcombe, Houston, Texas
Hilary E. Howse, Nashville, Tenn.
James R. Law, Madison, Wis.
J. Fred Manning, Lynn, Mas.
Roy N. Towl, Omaha, Nebr.
George J. Zimmermann, Buffalo, N. Y.

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Spruce Street, Sault Ste. Marie, Mich. Tarvia-built in 1919. Top photo shows Spruce Street as it looked the year it was built. Lower photo shows the condition of the road last summer—how it will look in 1936.

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FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Village Judge Eliminates Presence of Patrolmen in Court Proceedings

SCARSDALE, N. Y.—If your police officers waste much valuable time—and incidentally your taxpayers' money—through prolonged waiting in traffic court to prove their cases against minor law infringers, the plan now in effect in Scarsdale should prove of interest. The scheme, now in its second year of operation, has proved entirely effective, in the opinion of Charles M. Carter, Village Magistrate, and far greater efficiency has resulted, with scarcely a patrolman to be seen in the court-room when the magistrate sits.

Prior to the establishment of this plan it was not an uncommon sight to see ten or twelve patrolmen lounging about the court-room waiting for their cases to be called or for the holders of their tickets to put in an appearance. Frequently such procedure not only gave a bad impression to an observer, but also kept a patrolman from duty for as much as three or four hours, considering the time going to and from his assignment.

Such a condition no longer exists. In fact it's a rarity when an officer is seen in court, for he is called only when an individual insists on a "not guilty" plea, even after a judge's questioning. As a matter of fact, most people, when arraigned, readily admit their guilt. Some may think themselves innocent, but a brief questioning by the judge shows their reasoning to be faulty, and they usually change their plea, accept the court decision, and incidentally save another trip to court, when they might be found guilty anyway.

As an example, a motorist appeared not long ago.

"How do you plead to this charge?" Judge Carter asked. "Guilty or not guilty."

"Not guilty, your honor."

"The officer claims that you were driving your car at 45 miles an hour for more than one-fourth of a mile. You deny that?"

"Yes, sir."

"Well, how fast were you going?"

"I might have been going 40 miles an hour, but not 45."

"Do you know the highway laws and the village ordinance about automobile speed?"

"Yes, sir."

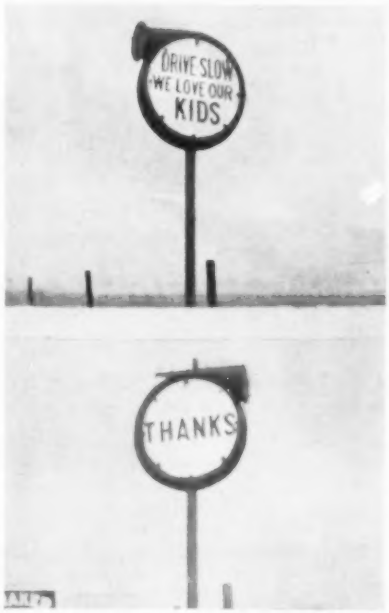
"Did you read the traffic warning sign that speed in Scarsdale is to be limited to 25 miles an hour?"

"Well—"

"Well, you still want to plead not guilty?"

"No, I guess I am guilty."

G. HARRIS DANZBERGER,
Editor, *The Scarsdale Daily Sun.*



WARNING AND THANKS TO MOTORISTS ENTERING AND LEAVING THE VILLAGE OF STURTEVANT, WISCONSIN

Public officials and civic organizations make increasing use of simple and elaborate warnings as aids to public safety

Making the Motorist Think

STURTEVANT, WIS.—Public officials and public-spirited citizens of Sturtevant have united efforts within the past several years to reduce accidents in and around this small community. There are several large highways running through the community which lead to Milwaukee and Chicago, and daily the speed of automobiles on these wide roads appears to be increasing.

Citizens decided to erect outstanding warning signs which would be different from those used in other localities, signs which would make the motorist think, and cause him to slow down his car. Therefore, on all highways leading to Sturtevant motorists now see signs which read, "Drive Slow, We Love Our Kids." On the opposite side of the sign is a single word, "Thanks."

A local blower system manufacturer donated the frames for the signs, which were made out of old blower tubes and are very distinctive signs. Motorists find their eyes straying to such a sign whenever they come along the highways. The local government sees that the signs are painted every year and kept in good condition.

MARTIN FRANCIS,
Nashotah, Wis.

SPECTACULAR PUBLICITY FOR SAFETY IN SOUTHERN CALIFORNIA

Sea and Air Warn the Land to Drive Safely

LOS ANGELES, CALIF.—To focus attention on the need for more careful driving, the Automobile Club of Southern California has recently used some spectacular methods of publicity, one of which is here shown. Raised and held in the air by box kites, this 231-foot sign, with letters 7 feet high, was towed slowly along the coast behind a motor boat for several successive week-ends. We estimate that over a million people were reached by this message.

Streamers carrying the same message were suspended across the street at 100 key intersections in Los Angeles, and also in many other communities throughout Southern California. Among other

INSTALLMENT PAYMENTS ON CURRENT TAXES . . .

Burroughs provides a simple plan and an inexpensive machine

Burroughs has made an intensive study of tax accounting procedure with respect to handling installment payments on current taxes . . . a plan that many cities and counties have found to be most productive of results.

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For this work Burroughs provides an inexpensive machine which posts a ledger card and issues a tax receipt (or makes an entry in the taxpayer's passbook if desired) in *ONE* fast, simple operation.

For complete details of this plan, together with a machine demonstration, telephone the local Burroughs office. They will send a representative fully qualified to go into this matter with you. Or, if you prefer, mail the coupon.

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Governmental Division, Burroughs Adding Machine Company, Detroit, Michigan

Without obligation, send me complete information about the newest mechanical equipment for handling the accounting problems checked below:

Tax Accounting ☐ Budgetary Control ☐ Fund Accounting ☐ Stores Records ☐ Payroll and Check Writing ☐
Purchase and Payment Records ☐ Revenue and Expense Distribution ☐ School Board Accounting ☐
Municipal Utility Accounting ☐ Institutional Accounting ☐

Name_____ Title or position_____

Address_____

Why not remember to mention THE AMERICAN CITY?

methods of publicity used in this campaign, window cards were placed in the windows of department stores and other business establishments, also in garages and filling stations, and show windows were used effectively in featuring displays with "Live and Let Live" as the central theme. Radios and newspapers, as customary, gave splendid cooperation.

E. B. LEFFERTS,

Manager Public Safety Department, Automobile Club of Southern California.

Commissioner Post Pledges Forward Steps in Vacating Sub-Standard Tenements

SPEAKING at the midwinter conference on December 12, of the New York State League of Savings and Loan Associations, Tenement House Commissioner Langdon W. Post pledged systematic action during 1936 in vacating those buildings throughout the city of New York which are in the worst condition and in the worst slums. The following excerpts from Mr. Post's speech indicate the magnitude of the problem and the procedure to be followed:

"In 1901 the Tenement House Law was passed by the Legislature and hailed as the instrument which finally outlawed old-law, sub-standard tenement houses. At that time, there were approximately 85,000 of these structures. Now, 35 years later, there are still standing 66,000. . . . We enter the year 1936 with laws going into effect which, in brief, require the owner to provide a toilet for every family, to do away with certain interior rooms, and to fire-retard the public hall from cellar to roof when the building is four stories or over in height. In addition to this, there are still a tremendous number of tenement houses which have not complied with existing provisions of the law requiring stair instead of vertical ladder fire-escapes, fire-retarding of cellar ceilings, and bulkheads to the roof in some buildings, as well as the usual smaller items that are constantly appearing and needing correction. The expense involved in complying with all of these items will amount to more than $7,000. I believe that at least half of the 66,000 old-law tenements will be subject to nearly all of these new requirements, and it is safe to say that in more than half of the cases where the violations are placed the owners will not find it worth while to make the necessary alterations to comply with the law. . . .

"The Tenement House Department has the power to order any building vacated that does not comply with the law, and the building which has been vacated cannot again be tenanted until the structure is brought completely within the law. This is a powerful weapon, and although seldom used until 1934, has been used since then with striking effect. We have ordered vacation of over 1,200 buildings within the last two years. Of these, 573 have remained vacant, and the balance have complied with the law. In addition to this, a very large number have been voluntarily vacated by the owners in order to avoid the expense of complying with the law.

"We know that this closing of buildings, or compliance with the law, must of necessity be a gradual procedure. We therefore intend to systematically vacate those buildings which are in the worst condition and in the worst slums. After a careful survey of the thirteen slum areas in the city, the houses will be graded by the Tenement House Department, and those which appear to be in the worst condition, and which show irresponsibility of ownership, will be ordered vacated immediately. In deciding whether or not to vacate a particular building, the Tenement House Department will give consideration to the record of the owner or manager in complying with previous violation orders, or in keeping the building in good condition and free from violations. Any building that is served wholly by yard toilets will be automatically vacated, so that by the end of the present La Guardia administration it is the hope of the Tenement House Department that not one single tenement house in the city will be so served.

"Such a systematic program of vacation as we propose naturally involves the problem of the removal and rehousing of a very considerable population. To meet this, the New York City Housing Authority is cooperating with the Tenement House Department by making a very extensive survey of vacancies in and about the areas in which vacation proceedings are being pressed. This list will be available to all the tenants of the vacated houses, and those who are on relief will be assisted by the Home Relief Bureau, with which the Tenement House Department also has a very close working agreement.

"Now, this drive on the worst of these tenement houses, using the new laws and the vacation power, must automatically stop when we get to the point where a housing shortage occurs, and it cannot and will not be successful unless we follow it up eventually with new buildings to house those people who are now living in these we are vacating. Such buildings obviously cannot be built by private initiative. The people living in these houses which we are going to vacate will, every one of them, be paying less than $7 a room a month. No private builder, no opponent of public housing, will maintain that private initiative can build houses to rent at that price on land valued at over $1 a square foot. This is the problem which faces the city, state and Federal governments."

Public Personnel Surveys Under Way

THREE personnel surveys now under way for two state governments and one local government indicate new interest in the trend toward public personnel.

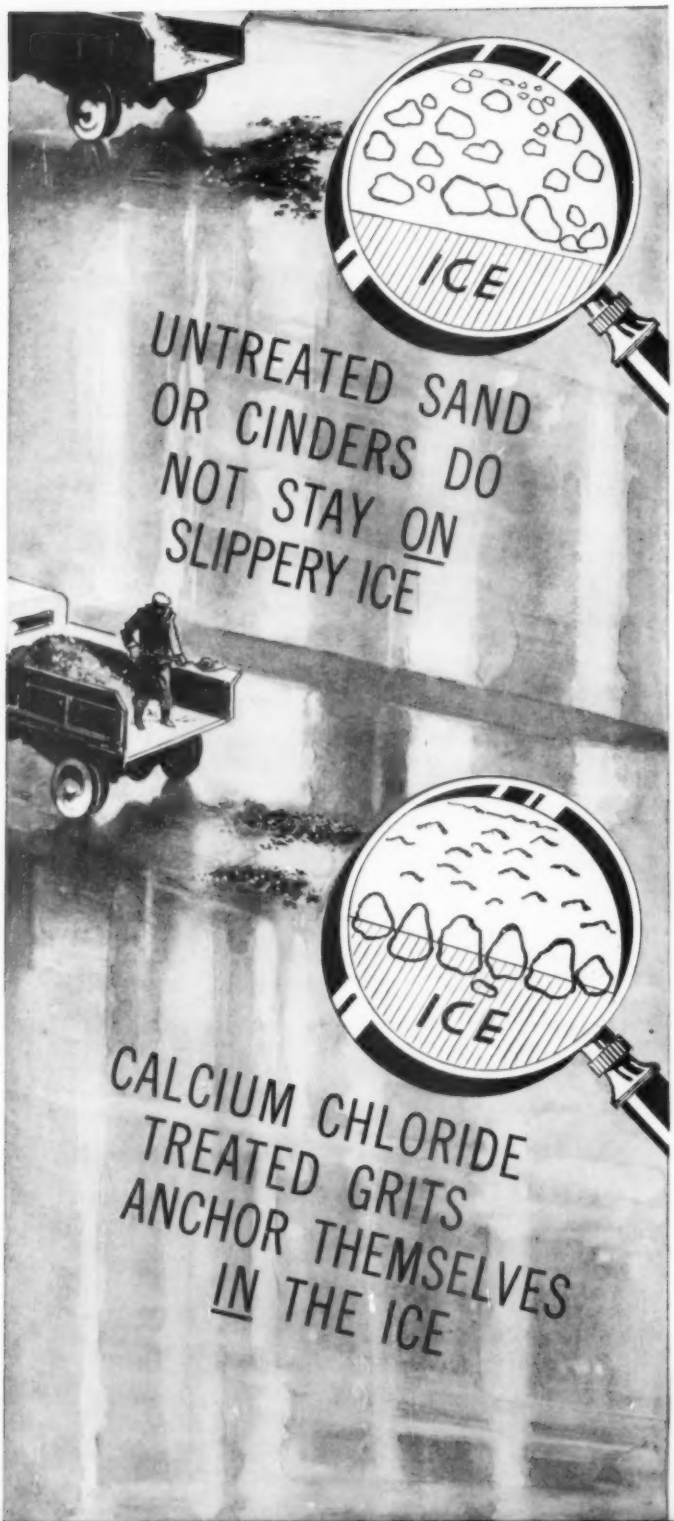
The three governments—the states of Connecticut and Michigan and metropolitan Cincinnati—have retained Public Administration Service, governmental consultants, to make the surveys. They have differing situations to deal with, but their objectives are the same—to check on and to increase the efficiency of their present systems of employee recruiting and management.

Both Connecticut and Michigan are making their surveys to determine what defects exist in the personnel function in the absence of a civil service system. Connecticut has not had a civil service agency for fourteen years, and Michigan has never had one.

The Cincinnati survey, on the other hand, involves a government which has long had a civil service law on the books. The survey is sponsored by the Coordinating Committee, representing the city government, the schools and the county, all three of which are under examination. One of the main objectives of this survey is to determine how the personnel work of these three governmental services can be "pooled" so as to result in greater efficiency.

The Town Hall in Hilversum, Holland

The King's Gold Medal was awarded by King George V on the recommendation of the Council of the Royal Institute of British Architects, to W. M. Dudok, of Holland, for his distinguished architectural work, the Town Hall of Hilversum, a view of which is reproduced herewith by courtesy of the *Journal* of the Institute


ICE
UNTREATED SAND OR CINDERS DO NOT STAY ON SLIPPERY ICE
ICE
CALCIUM CHLORIDE TREATED GRITS ANCHOR THEMSELVES IN THE ICE

SAND AND CINDERS *treated with* CALCIUM CHLORIDE *Prove many times* MORE EFFECTIVE

MAINTENANCE men tell us they can skid-proof as much icy road with one load of sand or cinders treated with Calcium Chloride as with several loads of untreated material.

They complain that dry sand is whisked off the ice as fast as they can put it on. They like to use abrasives treated with Calcium Chloride because they get results with the first application. The material imbeds itself into the ice and provides a non-skid, sandpaper-like surface. Thin applications of treated sand or cinders will provide better traction and greater anti-skid properties than heavy applications of untreated material.

If you are using plain sand or cinders for ice control work, just make this trial: Mix one 100-pound bag of Calcium Chloride with the next yard of abrasive material you put on an icy road. Then observe these values:

1. A thinner application does the work.
2. It stays longer—is effective many times as long.
3. It provides better traction.
4. It saves doing the job over and over during bitter winter weather.

SEND FOR BOOKLET

Write any of the members of this Association for literature describing methods of ice control with Calcium Chloride.

CALCIUM CHLORIDE ASSOCIATION

The Columbia Alkali Corporation . . . Barberton, Ohio
The Dow Chemical Company . . Midland, Michigan
Michigan Alkali Company . 60 E. 42nd St., New York City
Solvay Sales Corporation . . 61 Broadway, New York City

CALCIUM CHLORIDE

FOR BETTER ICE CONTROL

Fifteen Years or More as Chamber of Commerce Executives

IN 1920 The American City Bureau published a little volume entitled, "Who's Who Among Commercial Organization Secretaries," covering the managing executives of local chambers of commerce and similar organizations throughout the United States. Last month this directory was checked with the Bureau's list of men now holding such positions in all cities of 10,000 and over. Of the names in the current list 74 appear in the 1920 book, and have therefore had fifteen years or more of service in the civic-commercial organization field. The names and present addresses of these men follow. Those who have held their present position during the entire intervening period or longer (25 in number), are indicated by an asterisk.

Bartlett, N. G., Secretary-Manager
Eastern Carolina Chamber of Commerce, Kinston, N. C.
Bell, Andrew,* Secretary
Chamber of Commerce, Winchester, Va.
Beukema, John C., Secretary-Manager
Greater Muskegon Chamber of Commerce, Muskegon, Mich.
Bevitt, E. D., Secretary
Chamber of Commerce, Herkimer, N. Y. (Also Rome, N. Y.)
Blain, W. W., Secretary
Chamber of Commerce, Grand Forks, N. Dak.
Briggs, G. W., Manager
Chamber of Commerce, Pampa, Texas
Bren, Charles H.,* Secretary
Chamber of Commerce, Salina, Kans.
Bush, Lester C., Manager
Chamber of Commerce, Muncie, Ind.
Chesnut, William Pryor,* Secretary
Commercial Club, Fargo, N. Dak.
Daniels, James T., Manager
Chamber of Commerce, Jacksonville, Fla.
Davis, A. B., Secretary
Chamber of Commerce, Lubbock, Texas
Denmark, Walter Clark, Manager
Merchants Association, Goldsboro, N. C.
Dodson, W. D. B.,* Executive Vice-President
Chamber of Commerce, Portland, Ore.
Dudderar, G. W., Executive Secretary
Chamber of Commerce, Morgantown, W. Va.
Fellow, E. J., Secretary
Chamber of Commerce, New Castle, Ind.
Fewell, Frances Marie,* Secretary
Chamber of Commerce, Rock Hill, S. C.
Firmin, George, Manager
Chamber of Commerce, South Bend, Ind.
Fitzgerald, E. W.,* Secretary
Chamber of Commerce, Olean, N. Y.
Fitzgerald, John J.,* Secretary
Chamber of Commerce, Paterson, N. J.
Ford, James A.,* Managing Secretary
Chamber of Commerce, Spokane, Wash.
Galloway, G. Robert, Secretary
Chamber of Commerce, Waukegan, Ill.
Gibbs, Raymond B., General Secretary
Chamber of Commerce, Scranton, Pa.
Gray, Peter A.,* Secretary
Chamber of Commerce, Pueblo, Colo.
Green, Frank J., Secretary
Chamber of Commerce, Waterbury, Conn.
Hackett, Edwin C., Secretary
Chamber of Commerce, Hammond, Ind.
Haensel, Charles W., Secretary
Board of Commerce, Saginaw, Mich.
Hafey, James E.,* Secretary
Chamber of Commerce, Chicopee, Mass.
Hanes, C. O. Secretary
Chamber of Commerce, Jefferson City, Mo.
Harader, John A., Secretary
Chamber of Commerce, Bremerton, Wash.
Holcombe, Rawley W., Manager
Chamber of Commerce, Wheeling, W. Va.
Holland, C. F., Executive Vice-President
Chamber of Commerce, Knoxville, Tenn.
Jensen, F. W., Manager
Chamber of Commerce, Leavenworth, Kans.
Job, Richard, Managing Secretary
Board of Trade, Brunswick, Ga.
Johnson, J. Kennard, Manager
Chamber of Commerce, Binghamton, N. Y.
Johnson, Louis E., Secretary
Business Association, Franklin, Mass.
Jones, P. G., Secretary
Chamber of Commerce, Laurel, Miss.
Keen, Jos. E.* Secretary
Central Mercantile Association, New York, N. Y.
Kessler, B. R., Executive Secretary
Chamber of Commerce, Miami, Fla.
Ketchum, Charles M., Secretary-Manager
Chamber of Commerce, Greensboro, N. C.
Lamson, Frank B., Secretary
Chamber of Commerce, Peru, Ind.
Lemon, George Wray,* Managing Secretary
Chamber of Commerce, Troy, N. Y.
Lochner, Walter O., Secretary
Chamber of Commerce, Trenton, N. J.
Long, W. E.,* Manager
Chamber of Commerce, Austin, Texas
Lord, Edwin B., Executive Vice-President
Chamber of Commerce, Jersey City, N. J.
Lunk, W. R., Secretary
Chamber of Commerce, Auburn, N. Y.
Lyon, Frederick W.,* Manager
Chamber of Commerce, Milford, Conn.
McClary, S. H., Secretary
Chamber of Commerce, Monroe, La.
Madden, Alan C.,* Secretary
Chamber of Commerce, Middletown, N. Y.
Matthews, William E., Executive Secretary
Bronx Board of Trade, New York, N. Y.
Mead, S. C.* Secretary
Merchants Association, New York, N. Y.
Melton, M. E.,* Secretary-Manager
Chamber of Commerce, Texarkana, Ark.
Millener, William S.,* Secretary-Manager
Chamber of Commerce, Williamsport, Pa.
Morey, W. B., Secretary
Chamber of Commerce, Fitchburg, Mass.
Morrow, Ralph L., Secretary-Manager
Chamber of Commerce, New Rochelle, N. Y.
Morrow, William E.,* Secretary
Board of Trade, Louisville, Ky.
Norton, Frederick E.,* Secretary
Chamber of Commerce, Syracuse, N. Y.
O'Connor, Edward, Secretary
Chamber of Commerce, Floral Park, N. Y.
Otto, C. W., Secretary-Manager
Chamber of Commerce, Lansing, Mich.
Peterson, J. Willis,* Secretary
Chamber of Commerce, Galesburg, Ill.
Phelps, O. M., President-Manager
Chamber of Commerce, Mobile, Ala.
Pound, James H.,* Secretary
Chamber of Commerce, Benton Harbor, Mich.
Puffer, S. P., Managing Director
Chamber of Commerce, Charleston, W. Va.
Shafer, W. L., Secretary-Manager
Chamber of Commerce, Niles, Mich.
Simpson, Claude,* Secretary
Chamber of Commerce, Roswell, N. Mex.
Snell, A. V., Manager
Chamber of Commerce, Chattanooga, Tenn.
Stevens, Vincent S.,* Secretary
Chamber of Commerce, Akron, Ohio
Stowe, Albert J., General Manager
Chamber of Commerce, Alexandria, La.
Strong, Howard, Executive Vice-President
Chamber of Commerce, Wilkes-Barre-Wyoming Valley, Pa.
Van Auken, H. M., Executive Secretary
Chamber of Commerce, Wichita, Kans.
Vaughn, L. M., Secretary
Chamber of Commerce, Michigan City, Ind.
Warner, E. A., Secretary
Chamber of Commerce, Waterloo, Iowa
Weber, Earl S., Manager
Chamber of Commerce, Kalamazoo, Mich.
Wheeling, H. A., Secretary
Chamber of Commerce, Florence, S. C.
Whitten, Walter S.,* Secretary
Chamber of Commerce, Lincoln, Nebr.

Recent City Manager Appointments

GILBERT SOLLARS, for several years connected in a managerial capacity with the Crowell Publishing Co., of Springfield, Ohio, has been appointed first City Manager of Washington Court House, Ohio. He took office on January 1, 1936.

John N. Edy, former City Manager of Dallas, Texas, and recently First Assistant Director of the United States Budget Bureau, has been appointed first City Manager of Toledo, Ohio.

Homer Hanley, former City Clerk, has been appointed City Manager of Winfield, Kans., to fill the vacancy created by the death of William J. Welfelt.

Colus C. Hunter, a consulting engineer, has been appointed City Manager of Elmira, N. Y., effective January 1. He succeeds F. J. Sullivan.

John Kobs, who served as Superintendent of Public Works from 1928-31, has been appointed City Manager of Ashland, Ky., effective January 6. He succeeds William G. Powell.

James J. O'Brien, former Mayor, has been appointed City Manager of Lexington, Ky., effective January 6. He succeeds Charles Fithian, who has been Acting City Manager since last May, when Paul Morton resigned to go to Trenton.

L. L. Houston has succeeded J. M. Buckley as City Manager of Pawhuska, Okla.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from the December numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$120,000	Dauphin Co., Pa., Voting Machine	2	1-10 Ser.	1.83
100,000	Beacon, N. Y., General City	2	6.25 Avg.	1.99
125,000	Marion, Ohio, Liquidating Indebtedness	3.75	5.5 Avg.	3.59
488,000	Elizabeth, N. J., School	4	16.5 Avg.	3.68
343,000	Birmingham, Ala., Drainage	4	17.33 Avg.	3.81
115,000	Jefferson Co., Texas, Office Building and Jail	4	13.5 Avg.	3.81
165,000	Ambler, Pa., Sewer System	2.25	9 Avg.	2.14
489,000	Mahoning Co., Ohio, Poor Relief	2.5	4.66 Avg.	2.36
1,100,000	Easton, Pa., Water Works	2.5	17.25 Avg.	2.44
1,100,000	Trenton, N. J., Tax Revenue	2.5	1.75	2.48
150,000	Stratford, Conn., Town Hall and School	2.5	1-15 Ser.	2.49
7,711,000	Boston Metropolitan Dist., Mass., Refunding	2.5	17.5 Avg.	2.636
300,000	Dayton, Ohio, Deficiency	2.75	7 Avg.	2.74
200,000	Oakland, Calif., Harbor Improvement	2.75	17 Avg.	2.74
950,000	Mercer Co., N. J., Road, Bridge and County Building of 1935	3	10.16 Avg.	2.78
185,000	Eastchester, N. Y., Street Improvement	2.90	9 Avg.	2.89

TRAFFIC SAFETY *is your responsibility*

PUBLIC sentiment—public demand—everywhere is calling upon local authorities to do something definite to make streets and highways safer. *Safer cars*—not more laws to regulate traffic—are needed!

Compulsory vehicle inspection is the universal answer!

Bendix, pioneer of motoring safety, has met the situation with precision equipment. The new Bendix Civic Safety Clinic provides quick, scientifically accurate testing of brakes (each wheel separately, through an entire revolution, thus detecting out-of-round drums, flat or glazed or scored spots). It tests steering "geometry" thoroughly, tests headlights, springs, frame and wheel alignment, horn, lights, windshield wipers and mirrors.

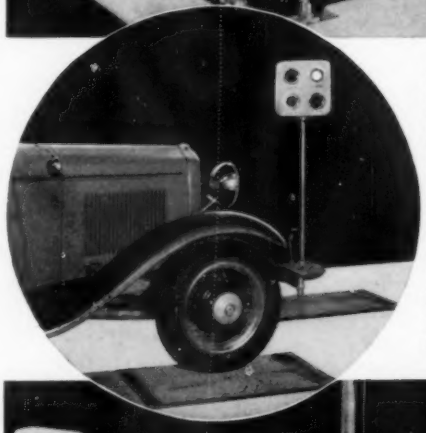
The Bendix Civic Safety Clinic is not only thorough and accurate, but fast. Tests five cars at once, turning a car a minute off the line. Everything in full view of driver—he sees what's needed.

Bendix has full details including proved plans of operation, available for the asking. The Bendix Civic Safety Clinic can readily be entirely self-supporting!

BENDIX PRODUCTS CORPORATION

(Subsidiary of Bendix Aviation Corporation)

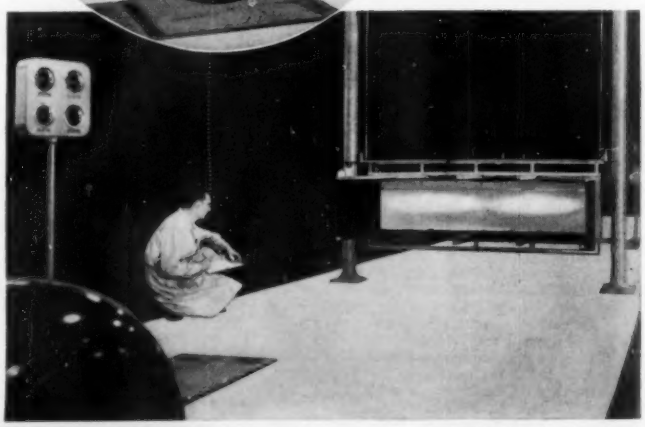
401 BENDIX DRIVE, SOUTH BEND, INDIANA



Above: *Tests each brake separately—by full wheel revolution under electric power . . . shows total stopping ability . . . shows up "out-of-round" drums. TESTS TRACTOR AND TRAILER TRAINS*

Left: *Tests wheel alignment, caster, camber, toe-in, entire steering geometry, precisely, quickly and easily.*

Below: *Tests headlights for focus, level, intensity . . . on a screen . . . in daylight!*



New BENDIX *Civic Safety Clinic*

BENDIX PRODUCTS CORPORATION
401 Bendix Drive, Dept. A-1, South Bend, Ind.

Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

Name .....

Address .....

City ..... *State* .....

Business or Profession .....

City Official (title) ☐ ..... Dealer ☐ .....

TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 175 Fifth Ave., New York

Paul L. Green, Chairman; Melvin J. Bankhead, James R. Guthrie, T. T. McCrosky, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, Miss I. K. Rolph, Peter J. Stupka, J. C. Vincent, John C. Wrighton

PARKING METERS COLLECT 40 CENTS DAILY AND KEEP CARS SPACED FOR CONVENIENT AND PROMPT EXIT, AS SHOWN ABOVE

Dallas Installs 1,000 Parking Meters

By C. G. BECKENBACH

Engineer in Traffic Division of Police Department, Dallas, Texas

FOR many years the problem of curb parking of vehicles has grown increasingly vexing to city officials. In Dallas, as elsewhere, attempt was made to meet the situation by establishing loading zones, extra safety zones and other parking restrictions, and setting limits on the time which would be allowed to any one vehicle.

Because of the high cost of adequate personnel to administer parking regulations and because they were so easily evaded by the simple expedient of erasing chalk marks or moving the vehicle a few feet periodically, it was found impracticable, if not impossible, to secure enforcement. A considerable amount of the downtown traffic officer's time was spent in assisting motorists, particularly ladies, in extricating their cars from tight places. Also, because of the limited parking space available, it was a frequent occurrence for an exasperated motorist in desperation to double-park his vehicle, taking a chance that he would not be caught before he could attend to his business and return.

Money Needed

Added to these complications there was an urgent need in Dallas for more traffic officers and for a modernization of the traffic-signal system, together with an extension of the system to cover areas not protected by signals. There was no apparent source of funds for either of these purposes.

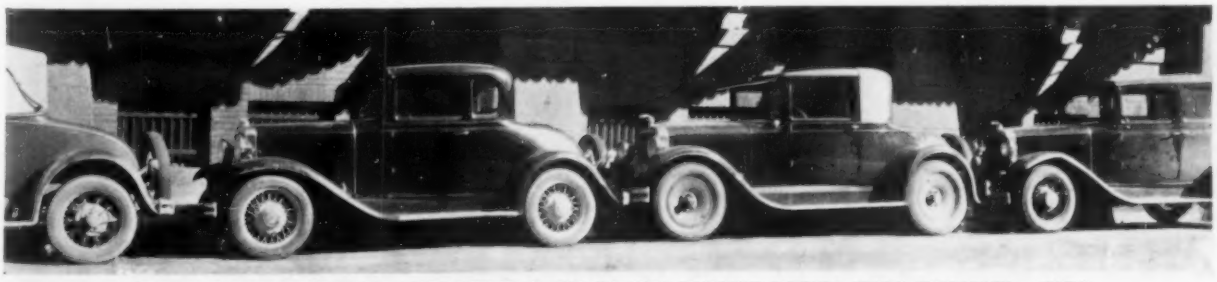
In response to urgent pleas for this added traffic control, the Manager and City Council could only tell the Chief of Police: "Show us a source of funds and we will give you relief."

This article sets out reasons for making this installation. We have a voluminous file containing letters from all classes of professional men as well as laymen commenting very favorably on results obtained. The letters have been received not only from local citizens but also from visitors from other parts of the country. Moreover, up to the present we have received no letters protesting against this manner of regulating parking.

HAL MOSELEY,
City Manager, Dallas.

In July of this year there came to the attention of the officials in Dallas a device known as the parking meter. Rather extravagant claims were made for this device, and for some time there was hesitation about even investigating it. However, a small trial installation in Oklahoma City was watched with care and interest, and the result of this trial installation was so startling that Dallas lost no time in adopting the parking meter system of parking control. Installation of 1,000 meters was made November 1-30, covering the most congested district. The results obtained by the use of these meters are as follows:

1. All-day parkers and "parking hogs" have been removed from the streets.
2. One or more parking spaces are available at all times for those having legitimate business.
3. Spacing the meters at 20 feet gives each parked vehicle adequate room to enter and leave its parking space.
4. Bumpers and fenders are rarely, if ever, damaged while entering the 20-foot space.
5. There is little or no wait for cars to go into or out of parking spaces.
6. Double parking has been eliminated.
7. Quick finding of parking space has reduced the amount of moving traffic, making possible a much more rapid movement.
8. There is a net revenue of about 40 cents per meter per day, which is ample for all traffic improvement needs.



THE SITUATION IN DALLAS (AS IN OTHER CITIES) BEFORE PARKING METERS WERE INSTALLED—CARS JAMMED TOGETHER, MAKING EXIT DIFFICULT AND SLOW

Try it

ON MUNICIPAL HAULING JOBS RIGHT IN YOUR OWN CITY

THERE are no experiments in the 1936 Ford V-8 Trucks and Commercial Cars. Every feature has been PROVED and APPROVED by millions of miles of service under every conceivable condition of load and road and weather. Its 80-horsepower V-8 engine has proved its economy and reliability on the world's greatest proving ground . . . the job itself. Its full-floating rear axle with straddle-mounted pinion . . . full torque-tube drive . . . positive, quick-action safety brakes . . . and many other quality features have proved the soundness of Ford design by their performance in actual service.

This impressive record offers convincing proof of V-8 Reliability. The cost records of owners firmly establish V-8 Economy. And V-8 Performance needs no confirmation, for it is evident everywhere you look. Thus, Ford V-8 Trucks and Commercial Cars have been PROVED BY THE PAST. Now they have been IMPROVED FOR THE FUTURE. Call any Ford dealer and set a date for an "on-the-job" test without cost or obligation. Ask about the money-saving Ford engine-exchange plan and other parts exchange privileges.

Convenient Universal Credit Company credit plans make this great truck value immediately available

FORD V-8

TRUCKS AND COMMERCIAL CARS

Why not remember to mention THE AMERICAN CITY?

9. Motorists and merchants are immensely pleased with the new conditions.
10. There has been a reduction of accidents in Dallas this year, whereas in the past there has usually been an increase during December. Part of this, it is felt, is due to the fact that the nerves of motorists are not frayed and irritated as much as formerly, and therefore the motorist is not in a frame of mind to take chances. This, of course, is a theory, which it would be difficult to prove.

The motorcycle which we use for observation of cars is a three-wheeled machine capable of being maneuvered in close quarters at low or high speed. One man mounted on this machine can drive at 10 to 15 miles per hour and check cars for over-parking. An over-parked condition is indicated by the disappearance of the green celluloid flag which shows behind a window in the meter after the 5-cent parking fee has been deposited.

Three time-limits are used in Dallas: a 20-minute time in front of banks; a 40-minute limit close to stores doing a quick turnover business; and a one-hour limit near department stores.

Our Experience with Parking Meters

By **O. M. MOSIER**
City Manager, Oklahoma City, Okla.

THE downtown parking problem in Oklahoma City was for years becoming more acute. In spite of ordinances limiting parking, there were so many abuses of parking privileges that it was almost impossible for shoppers to find parking space, even after considerable cruising, because al space had been occupied by cars owned by business men and their employees. Numerous cars received dented fenders from impacts due to parking too close together. Policing was unsatisfactory, depending upon the marking of tires with chalk, and this might not be done for a considerable time after cars had been parked. Numerous disputes arose.

Last summer Oklahoma City turned to parking meters as a remedy for these numerous ills, and 174 of them were purchased as an experiment. Oblong parking spaces were marked off every 20 feet with paint, along the street boundaries, and in the sidewalks opposite the fore part of each parking space was placed a meter, standing waist-high. A 5-cent coin is used to operate each meter. As the meter operates, it throws a green flag across the transparent space in the top of the meter, making it easy for the police to determine legal and illegal parking at a glance. A clockwork mechanism operates an indicator showing the number of minutes remaining on a dial, for the convenience of the person parking. When time is up, the green flag drops and the space is clear, and cars parking in spaces opposite such meters are subject to being tagged. Some meters were set for half-hour and others for one-hour periods, according to location. In this experimental installation meters have been placed along only one side of several streets in the heart of the congested downtown district.

The legal principle of the parking ordinance is not taxation for the use of the streets, but a fee for the cost of regulating. parking and keeping traffic moving. Such regulation not being needed at night, meters are not required to be used after 6 P. M. Nor are they in effect on Sundays or holidays.

Public Prepared, and Accepts System

The public was prepared for the meters by advertising and radio, which pointed out the abuses and evils of the old system and enumerated the prospective benefits of the new. This advertising and propaganda served its purpose in making the public open-minded for a trial. Many people, including public officials and police officers, were sceptical as to the practicability of regulation in this form.

COLLECTING THE NICKELS

The meter system went into effect July 17, 1935. Some doubt was expressed early in the morning when parking spaces failed to fill up immediately, but by eleven o'clock most of the spaces were occupied, with enough still unoccupied to accommodate all shoppers. By one o'clock officials and police were convinced that the system was a success, and by evening they were all wondering why some one had not thought of it before.

District Court's Decision

After two days of use, the operation of meters was temporarily enjoined by the District Court. The plaintiffs alleged that the coin-operated meters impaired their right to the free use of the streets as provided by statute. The Court dissolved the injunction, holding that "use" means "travel" and that "parking," which can be prohibited altogether, may be regulated and a fee charged. The meters were then re-installed and have been in operation ever since.

For the last four months the two sides of the city's downtown streets have provided comparisons which are obvious. On the unmetered side is confusion, cars jammed together, fenders being bent, cars being pushed in front of fire hydrants, and traffic being impeded by those who are trying to back into the cramped parking spaces, while shoppers can hardly find parking spaces open. On the metered side is order, sufficient room for every car to be parked and driven out quickly and easily, and there are usually parking spaces open so that shoppers can park within a block of any store or bank. Women, particularly, have praised the system for the speed with which parking space may be found, and for the ease of backing in and driving out of parking spaces. Police have found that machine indicators are much more reliable in regulating over-parking than the old system which depended on the human element.

300 More Meters

As a result, the city has just let a contract for 300 more meters, which will make possible the same regulation of most of the congested downtown retail and financial districts. The city would require in all about 1,808 meters to cover all present limited parking zones.

The steady flow of nickels has been pleasing to the city's financial officials. For a long time property taxes have borne too many costs unrelated to its protection. Property taxes for cities were sharply curtailed by constitutional amendments two years ago. In searching for revenue substitutes, the Council has looked first to those who have made city regulations necessary, and to those who receive the benefits of city services. In these respects the parking fees met the requirements of being fair contributions to the cost of city government.

Collections for the first four months were as follows:

Month 1935	Days of Operation	Receipts 174 Meters	Average per Day	Average per Day per Meter
August ...	27	$1,979.91	$73.33	$0.42
September..	24	2,088.97	87.04	.50
October ..	27	2,331.51	86.35	.50
November .	25	1,977.99	79.12	.45

The drop in November receipts was due to extending parking time in several zones from 30 to 60 minutes. So far, experience has shown that the revenues from month to month are remarkably consistent, a feature much to be desired of the revenues anticipated in the annual budget.

While there are some opposed to the meter system, the public and the downtown merchants have accepted the meters favorably. Merchants on the unmetered sides of streets have requested the complete installation of meters. Taxpayers have accepted favorably the idea of better traffic control on a self-supporting basis.

OUT-WIT THE LAWBREAKER

with 1936 HARLEY-DAVIDSONS

To effectively cope with lawbreakers, enforcement departments must keep a jump ahead on equipment. That's why the new 1936 Harley-Davidson Police Motorcycles will enable you to out-wit those who defy the law.

Up-to-the-minute improvements produce super-performance in the great "74 Twin" and "80 Twin" Police Models—extra speed, faster get-away, added flexibility, greater ease of handling. Radio-equipped Harley-Davidson Police Motorcycles answer every need of central control and quick massing of officers at scenes of trouble.

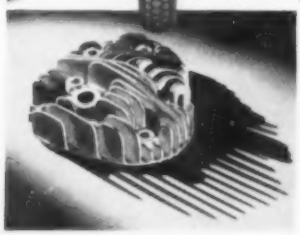
Squads mounted on 1936 Harley-Davidson Police Motorcycles will make traffic control more complete and effective—whether in country districts or congested city areas.

Out-wit the lawbreakers—and out-wit excessive operating and maintenance costs with dependable, economical 1936 Harley-Davidson Police Motorcycles.

Phone your nearby Harley-Davidson Dealer now—or write us for special police literature.

HARLEY-DAVIDSON MOTOR CO., Dept. M, Milwaukee, Wis.

New, compact, sturdy, "Saddle-bag" mounting of radio. Weight is way down low — handling of motorcycle improved.



New cylinders and heads with larger, deeper fins rapidly dissipate heat and assure a cool-running motor.

New front-fork spring-shields —retain lubrication, keep out dirt—and with new horn mounting, add to stream-line effect.

HARLEY-DAVIDSON

The Police Motorcycle

IMPROVING MUNICIPAL ADMINISTRATION

Current Items from the
Public Administration Clearing House

The Noise Nuisance

CITY officials are serious about eliminating noise, it is noted in studying new anti-noise ordinances enacted by a growing number of municipalities listed in the *United States Municipal News*, bulletin of the American Municipal Association and the U. S. Conference of Mayors.

The Mayor of Philadelphia has appointed a committee to prepare new regulations on noise, which will be submitted to the Council after a public hearing. The present ordinance, adopted in 1933, restricts only commercial loud-speakers (human or mechanical) but does not apply to automobile horns or political campaign band-wagons.

Gary, Ind., has an ordinance prohibiting the use of any noise device on automobiles except a horn. Sirens on police and fire trucks and ambulances are excepted. Buffalo's anti-noise ordinance, now under consideration by Council, bans many kinds of "annoying" noises, including the grating and grinding of overloaded trucks and street cars, buzzing of aircraft used for commercial advertising, and too loud, too long vocalizing of pet birds or dogs. A proposed ordinance for Milwaukee would prohibit any factory from making "loud or sharp" noises between 8 P.M. and 6 A.M. without a permit from the Health Department.

Louisville proposes to prohibit the hawking of wares in such manner as to disturb the public peace and tranquility. Detroit has dug up an old anti-noise ordinance which provides that: "No motor vehicle shall be run with cut-out open or make any other unnecessary sound disturbance. This shall prohibit the sounding of any warning device while the vehicle is not in motion, except when necessary to avoid accident." Charleston, Boston, Hartford and St. Louis are among other cities currently engaged in anti-noise campaigns, St. Louis directing particular attention to obnoxious horn-honkers.

New York, first of American cities to inaugurate a silent-night campaign, would extend the noiseless hours to 24. A new ordinance proposed for this city provides for modern noises not mentioned in the old ordinance, such as mufflers, noisy truck loads, loud-speakers, radios. It is believed that a clause forbidding the operation of motor vehicles which make noise because of faulty repair, if enacted and enforced, would reduce traffic noise 80 per cent.

A difficulty which may arise in enforcing some of these new noise ordinances grows out of the fact that proof of what constitutes a disagreeable or excessive noise is not easily arrived at without a standard measure. In most cities the police officer's discretion and the offender's willingness to admit provide the only basis for arrest.

In England the Minister of Transport is recommending that all new vehicles be required to conform to certain standards of quietness before they leave the factory. The unit of noise-measure to be used is called the "phon," 130 of which is the limit the human ear can bear without pain. He recommends a limit of 90 phons for a car moving at 30 miles per hour, and 95 phons when it is stationary with the engine running high. It has been suggested that the restrictions be relaxed by 5 phons for the next two years, so that vehicle manufacturers may have time to devise adjustments.

Real Estate Tax Exemptions

GROWING evidence of the disposition of cities to put back on the tax rolls property which for some time has been exempt is found by Albert W. Noonan, Technical Director of the National Association of Assessing Officials.

The December issue of the *Assessors' News Letter*, published by the Association, calls attention to changes in legislation advocated by New York City's advisory committee on tax exemption and equalization to return $700,000,000 worth of tax-exempt real estate to the tax list. All exemptions allowed clubs, societies and professional organizations would be eliminated entirely or limited to small accounts. Parsonage exemptions would be removed. Private schools, to be entitled to exemption, would have to offer a stipulated number of free scholarships, available without restriction to students who qualify through public competitive examination. Hospital exemptions would be measured by the quantity of free service rendered. Taxes of a fixed percentage of the sale price would be imposed on land purchased by or sold to cemetery associations. The committee also recommends that the state pay local taxes on its real estate used for purposes from which New York City does not solely benefit. Another recommendation would give the city a voice in the choice of sites for public schools, churches, and other institutions normally exempted, to safeguard the most valuable land against non-revenue-producing uses.

Kansas cities, by state law, no longer exempt from taxation property of college and university societies.

In California, a recent court decision threatened to compel all religious, fraternal, charitable and other non-profit organizations to pay taxes in full on their properties. The Supervisors of Los Angeles County, however, adopted a procedure whereby valuations of such property are greatly reduced, on the theory that the property has a much smaller value when used for religious, fraternal or charitable purposes.

The Board of Assessors of Pittsburgh recently ordered all utility-owned real estate, hitherto exempt, to be taxed.

Municipal Reporting

FIFTY-THREE cities in the United States made reports of 1934 operations to taxpayers in 1935. This is a slight increase over the previous year, and, according to *Public Management*, official magazine of the International City Managers' Association, is a favorable indication that cities are coming to recognize the value of municipal reporting.

An analysis of the reports shows a number of interesting facts: The reports are becoming more standardized in size, a majority of those for 1934 being 6 by 9 inches and from 25 to 55 pages long—"easy to handle and quick to read." Practically every report contained an organization chart, enabling citizens to see at a glance the structure of their local governments. Widespread use was made of "before and after" pictures of municipal construction projects, as well as action photographs of other city activities.

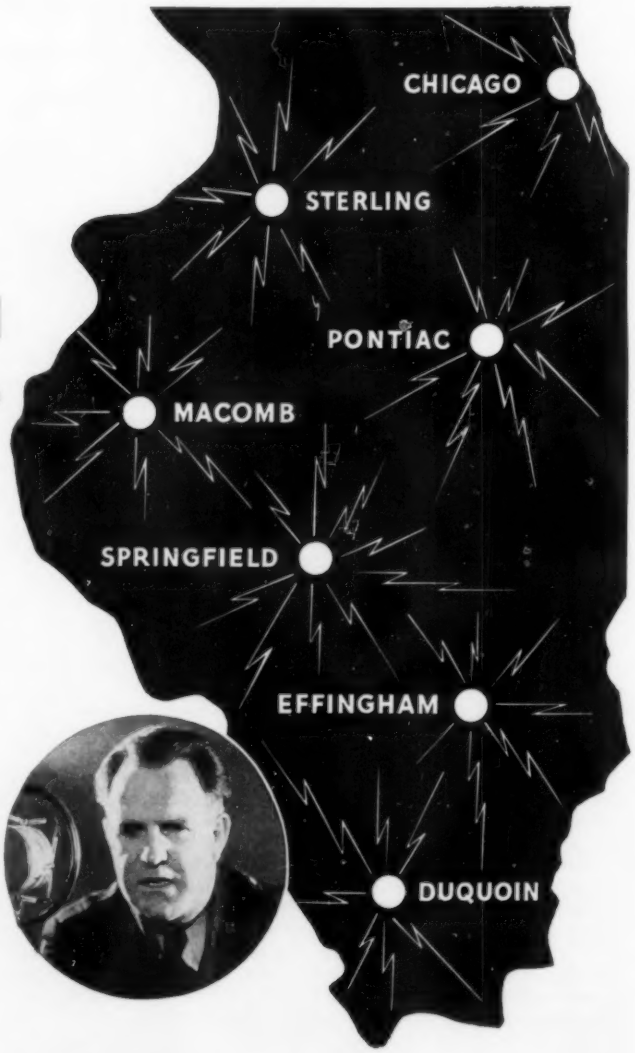
Several reports are commented upon for their unusual innovations. The publications of Dallas, Texas, and Memphis, Tenn., contain articles written in news magazine style on all the city departments and services. Features in the Dallas report include full-page "advertisements" for the Department of Public Health and the Traffic Division of the Police Department; and a suggestion on the back cover to citizens about using the services which tax dollars make available, followed by a list of consulting and advisory services and the departments rendering them. Benton Harbor, Mich., put the back cover of its report to use by briefly summarizing the traffic rules. Under the heading, "What Your City Does for You," Mangum, Okla., lists on one page services provided by the city, and on the opposite page asks, "But What Do you Do?"—a plea for more active citizen participation in the improvement of government.

The reports are lacking in one respect, according to the magazine. Instead of appearing within six weeks after the end of the year they chronicle, most of them did not come out before ten weeks or three months had elapsed.

In addition to the 53 cities issuing reports in 1935, a few cities distributed circular letters or brief reports giving summaries of the cost of city services. Among these were Coral Gables, Fla., East Cleveland, Ohio, and Portland, Maine. Cincinnati, Bangor and Kenosha issued special leaflets to supplement their annual reports.

For three years the Vermont State Chamber of Commerce has sponsored a municipal report competition, awarding diplomas for reports outstanding for presentation of financial statistics, general arrangement, city planning, etc. This year Maine and New Hampshire cities have been invited to enter similar competitions with their reports.

ILLINOIS STATE POLICE installing 7 Western Electric 1 KW Radio Transmitters



New system gives added protection to entire State

Illinois selected Western Electric 1 KW transmitters after careful study of specific needs and available equipments. When the seven stations are in service, no State Police car in the state will ever be out of touch with headquarters.

Whether your need is to cover a small town, a city, a county or a whole state, there's a Western Electric Police Radio system to do it efficiently—to make your community a safer place for all but criminals!

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POLICE RADIO TELEPHONE EQUIPMENT

When you write for that catalog, kindly mention THE AMERICAN CITY

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Private Covenants—Setback

FLORIDA.—*Edgewater Beach Hotel Corporation v. Bishop*, 163 So. 214 (Supreme Court, August 26, 1935). Restrictive covenants prohibiting the erection of any building within 25 feet of the front of the lot conveyed are unenforceable in equity where conditions had entirely changed since the lots were sold, so that property once suitable for modest dwellings was in demand for the erection of expensive apartment houses and hotels.

Zoning Ordinance — Amendment —Petition of Neighboring Property Owners

LOUISIANA.—*State ex rel. Pleasant v. Hardy*, 157 So. 130 (Court of Appeals, Second Circuit, November 2, 1934).—The zoning ordinance of Shreveport, La., provides that amendments to the zoning ordinance shall be accompanied by a petition signed by the owners of sixty per cent of the area within a radius of 300 feet of the property proposed to be reclassified. This is a suit to enjoin the Council from proceeding with the petition, because it was signed by less than the required sixty per cent, and some of the signatures were obtained by misrepresentation or affixed by mistake.

The Court refused the injunction because a zoning ordinance can be repealed or amended by the City Council whenever in its wisdom it may deem it necessary. It cannot delegate that right to any one else. It therefore follows that the City Council can amend the ordinance to comply with the request of Miss Dickson whether or not there was a petition signed by sixty per cent of the property owners in a radius of 300 feet of the property owned by her, or if there were no petition at all. It likewise can refuse to amend the ordinance if every property owner in the subdivision should sign the petition.

Garage

NEW JERSEY.—*Dornbusch v. Public Service Coordinated Transport*, 180 Atl. 553 (Supreme Court, September 30, 1935).—The business of washing cars in an automobile laundry, as conducted in this case, is an automobile accessory business. Its exclusion from a neighborhood largely devoted to the sale of gasoline and the servicing of cars and batteries is arbitrary and unjustified.

Garage—Consent

NEW JERSEY.—*Oster v. Mayor and Common Council of Borough of Westwood in Bergen County*, 180 Atl. 556 (Supreme Court, September 11, 1935).—Where the zoning ordinance prohibited the erection of a garage within 200 feet of a church, the board of adjustment cannot grant a permit for the building within the prohibited distance, notwithstanding the fact that the trustees of the church made no objection to the proposed building.

Residence District — Reasonableness

NEW JERSEY.—*Dorsey Motors Inc. v. Davis*, 180 Atl. 396 (Supreme Court, August 14, 1935).—The plaintiff's property is situated at the corner of Green Street and Amboy Avenue, in the township of Woodbridge. Green Street is residential, Amboy Avenue commercial and industrial, in character and use. All of the southern end of Amboy Avenue has been zoned for business or industry, except 1,650 feet, in the center, which has been made residential. The plaintiff's property is in this residential district. The plaintiff is seeking a permit for an industrial building, and claims that the ordinance creating this residential zone is unreasonable and invalid. And in this contention the plaintiff is sustained by the Court, who says:

"The only conclusion to which I can come under the uncontroverted facts is that the exclusion of ordinary business from the disputed portion of Amboy Avenue was an unreasonable and capricious act on the part of the township committee. . . . Respondents do not seriously dispute the business aspect of Amboy Avenue. Their argument is built up largely on the fact, which I think is well sustained, that Green Street is a residence street. The controlling thoroughfare in this instance, however, is Amboy Avenue. It is unfortunate that a residence street crosses that busy and business thoroughfare; but it does cross and must suffer whatever inconvenience results therefrom."

Non-Conforming Use—New Jersey Law

NEW JERSEY.—*De Vito v. Pearsall, Building Inspector of Borough of Rumson*, 180 Atl. 202 (Supreme Court, July 22, 1935).—The owner of a lot in a residential zone in the borough of Rumson, although entitled to maintain a greenhouse in existence before the passage of the zoning ordinance, is not entitled to a building permit for the replacement of the greenhouse with a substantially larger greenhouse. The New Jersey enabling act authorizes the Rumson ordinance permitting the continuance of nonconforming uses, which are valid under the New Jersey constitutional amendment providing for zoning. The ordinance, however, does not allow a substantial enlargement of such uses.

An Index to the Zoning and Planning Notes

which have appeared in this department of THE AMERICAN CITY during 1934 and 1935 will be found in the 1936 edition of THE MUNICIPAL INDEX, to be published this month.

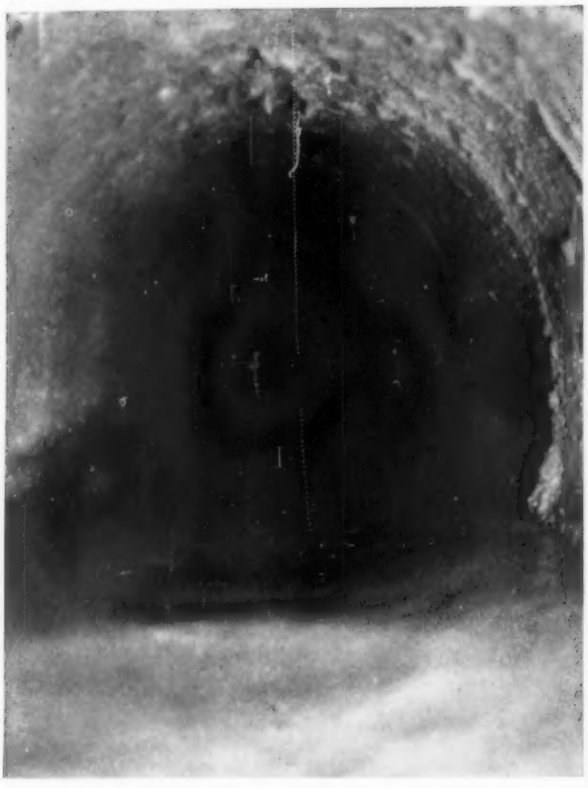
Zoning—Accessory Use—Electric Signs

NEW YORK.—*In re Towers Management Corporation (Thatcher)*, (Supreme Court, Kings County, reported in *New York Law Journal*, September 10, 1935).—This is the application of the owner of a hotel to erect an electric sign in connection with his hotel in a residential district in New York City in which the business of erecting and maintaining signs is prohibited. The owner of the hotel wishes to use the sign to advertise his hotel by placing the sign on it.

The legal questions involved are: (1) Is the erection of the sign in this case a use accessory to the hotel business, in which event it is expressly permitted under the Building Zone Resolution of the city? (2) Should the petitioner be compelled to seek his remedy before the Board of Standards and Appeals of the city in its discretion as a variance to the Zoning Resolution, or may he obtain the permit from the Building Inspector of the city without so doing?

In the opinion of the Court, if the answer to the first proposition is in the affirmative, the petitioner is entitled, as a matter of right, to the permit, and the Court should order the Building Inspector to issue it without compelling the petitioner to apply to any other board or body.

And, in the opinion of the Court, the answer to this first question should be in the affirmative. From time immemorial hotel signs have been recognized as incidental to the conduct of a hotel. We cannot close our eyes to present conditions when hotels are erected many stories in height, and when electrical illumination, advertising such hotels, is used as a matter of course. The law attempts to keep pace with the times and not to interfere unduly with ordinary and reasonable progress. But if the sign proves to be a nuisance, it cannot be permitted. Opinions may reasonably differ as to whether it will interfere with the peace, rest and ordinary life of a residential section. It would appear that since the residences in the vicinity consist almost entirely of buildings much lower in height than the hotel, the occupants of these residences will not be disturbed; especially since it is proposed to erect the sign at the height of fifteen stories, at a place set back fourteen feet from the building line. Only after the erection and use of the sign can it be fairly



1887 *This concrete pipe sanitary sewer has been in continuous service for 48 years. Concrete is still smooth and dense—sewage scum shown on arch.*

1935 *Section of the new 48-inch concrete pipe interceptor through soft fill. A fine piece of engineering and construction. Infiltration is practically nil.*

Cedar Rapids knows
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CEDAR RAPIDS is now completing a program of sanitary sewer and sewage works construction which has been in continuous progress since 1929. The program is based upon a definite city plan and zoning laws which indicate the probable trend and growth of business and home occupancy for a forty-year period. The intercepting sewer construction is especially interesting because of the methods used and the general *adoption of precast concrete pipe.*

The new sewer relieves the load of an *old concrete pipe interceptor constructed in 1887*, one of the earliest precast concrete pipe jobs. Frank Barta, Superintendent of Sewers for 45 years, states that he has never had occasion to repair the line, which, until five years ago, carried all of the East Side sewage of the city. Though frequently overloaded, *this 48-year-old sewer is still in good condition.*

The new interceptor closely parallels the original sewer, leaving the old unit in service to serve part of the commercial district. 2700 feet of the new sewer is 48-in. pipe placed in tunnel 26 ft. average depth under a street occupied by four trunk-line railway tracks. The whole project is carefully planned and constructed to resist all probable superloads. The project was designed by Howard R. Green Co., Cedar Rapids. F. E. Young, City Engineer, joint supervisor of construction.

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determined whether a nuisance has been created. In such event appropriate relief can be sought.

Motion for peremptory mandamus is granted.

Board of Appeal, Variance—Residential District, Reasonableness

NEW YORK.—*Town of Babylon v. Wellwood Cemetery Association, Inc.* (Supreme Court, Suffolk County. Reported in the *New York Law Journal*, November 25, 1935). The opinion of the Court in this case is as follows:

"It seems clear that the plaintiffs must fail in this action for two reasons. In the first place the Board of Supervisors of Suffolk County, under section 73 of the Membership Corporations Law, have exclusive authority to determine whether and at what places cemeteries may be established therein. The section provides complete machinery for a fair and orderly determination on the merits, including due publication of a notice of hearing and an opportunity to all interested persons to attend and be heard. Under our system one trial ordinarily suffices, and hence it seems improbable that the Legislature intended that the successful applicant should next be obliged to go before the board of zoning appeals for a variance. In other words, the zoning ordinance must yield to the higher authority delegated by the Legislature to the board of supervisors (*Jewish Consumptives Relief Society v. Town of Woodbury*, 230 App. Div. 228, aff'd 256 N. Y. 619.) In the second place there is very serious doubt as to the validity of the zoning ordinance, in so far as it attempts to classify defendant's property in Residence B District. At the request of the respective parties I have viewed the property as well as the surrounding territory. It is located in the scrub oak belt, probably the least attractive part of Babylon Township. The defendant's property has cemeteries as neighbors on two sides, and the so-called residential developments on the other sides are negligible. In fact, they bear every resemblance to the countless Long Island lot developments which have never progressed beyond the blueprint and high-pressure salesman stage. For this reason it would appear that the zoning ordinance, as to defendant's property, "passes the bounds of reason and assumes the character of a merely arbitrary fiat" (*Village of Euclid v. Ambler Realty Co.*, 272 U. S. 365, 389, quoted with approval by the Court of Appeals in *Town of Islip v. Summers C. & L. Co.*, 257 N. Y. 167).

"It follows that there must be judgment for the defendant, with costs."

Zoning—Reasonableness

NEW YORK.—*City of Olean v. Conkling*, 157 Misc. 63 (Supreme Court, October 30, 1935). The zoning ordinance of the city provided that:

"Sec. 1. Each and every block (so called) being the lands lying between intersecting streets in both directions, now occupied by and containing only buildings used exclusively for residence purposes, churches and schoolhouses, and outbuildings appurtenant thereto, in which there are now not less than ten dwelling houses, and all of such city blocks within the city of Olean, are hereby stated and declared to be the residence district in said city."

Section 2 forbade the erection of certain buildings, including filling stations, in such district.

In the opinion of the Court, the language of the ordinance clearly indicates that the phrase "city block" is intended to be both sides of one street, between intersecting streets, although sometimes it means "square block."

The Court finds that the ordinance is not valid.

Ordinances passed by authority of the state enabling act must "be designed to promote the public health, safety and general welfare" and made with "reasonable consideration" as to (a) "the character of the district," (b) "its peculiar suitability for particular uses," (c) "the conservation of property values" (d) "the direction of building development."

And all these elements must be applied by the municipality "in accord with a well-considered plan." The ordinance in question was not so drawn.

Fences Wholly or in Part of Barbed Wire

WISCONSIN.—*Williams v. City of Hudson*, 262 N. W. 607 (Supreme Court, October 8, 1935). Mrs. Williams is the owner of half a block in the city of Hudson, bounded by streets and a public alley. She proposed to build a fence 6 feet in height, with arms extending inward to which barbed wire was to be attached. The fences were to be erected to protect numerous fruit and nut trees, plants, bushes and a large vegetable garden from acts of vandalism.

There was a city ordinance which provided that no fence consisting wholly or in part of barbed wire shall be erected or maintained in the city of Hudson, except for farming purposes. The city contests the right of Mrs. Williams to erect the fence with barbed wire.

The Court decides that Mrs. Williams may erect the barbed wire fence. The distance above the ground at which the wire is to be placed excludes the possibility of any one's coming in contact with the wire unless it be someone purposely doing so in an effort to trespass. Barbed wire is not a nuisance per se. The restrictions sought to be imposed by the city are in the opinion of the Court unreasonable and invalid.

County Zoning in Wisconsin

Wisconsin in 1935 passed a statute (ch. 303) which permits the zoning of unincorporated areas for bulk as well as use, and the zoning for both use and bulk of areas along natural watercourses, with an official map which shall show these watercourses and the areas so restricted.

With regard to the latter amendment Charles B. Bennett, City Planning Engineer of Milwaukee, writes:

"I think it adds something really new to county planning.

"You will note . . . that the county may adopt an official map which shall show thereon the natural watercourses which may be restricted. Such a map will be of immeasurable value to subdividers of lands, and various municipal agencies in planning the location of storm sewers, highways, etc.

"This amendment was introduced in the Legislature after several conferences between Milwaukee's city and county planning officials, who, because of some sad experiences, felt that an official map showing thereon the natural watercourses which were to be preserved would be a notice to all subdividers and others that said streams were to be left in their natural state. Heretofore subdividers have been asked to dedicate lands alongside certain small creeks for parkway purposes only to have the sewer department come along later and reroute the creek or swallow same up in a storm sewer. With an official map agreed upon by planning and sewer officials, such a situation could not arise."

EDITOR'S NOTE.—Areas along watercourses, except as the public has acquired the ownership in them or rights in them, are private property; and while it may be legally possible to apply special police regulations to them on account of their special character, this statute does not attempt to restrict them except in accordance with the ordinary principles of zoning.

Government Aid to Low-Cost Housing

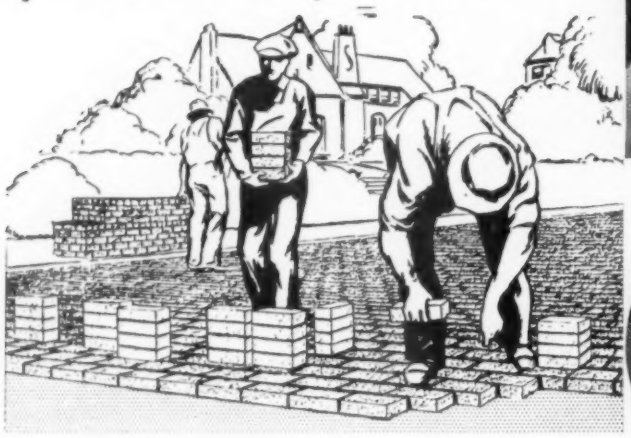
"GOVERNMENT assistance to housing—whether in the form of credit, contingent liability on insured loans, or direct grants—should be given only in return for reliable assurance that discredited building and finance practices will be abandoned. No policy will be more costly in the long run than saving housing investments resulting from racketeering and high-pressure salesmanship . . . then turning the housing business back, without effective conditions or restrictions, to the same people who have made all or most of the trouble."

Coleman Woodbury, Executive Director of the National Association of Housing Officials, expressed this opinion in his annual report recently made to the Association.

Housing problems, said Mr. Woodbury, exist primarily because of "the disparity between the costs of providing housing and the rent-paying ability of a large proportion of the families of the country." He explained that "if the present economic recovery brings family incomes to a point halfway between the estimates of the Brookings Institution for 1929 and the Real Property Inventory in 1933, half of the non-farm families of the country will have incomes of $1,400 or less. This means that they can pay normally not more than $23 per month for rent, or about $29 for rent, including heat and light. If any families in these income ranges can afford to undertake to purchase houses—and possibly a few of the younger families might if their prospects are good for larger incomes in the future in the same locality—the top purchase price, inclusive, should not be more than two times the assured annual income, or $2,800."

At the same time, Mr. Woodbury pointed out, "housing policies and practices of the next few years will have to be carried out in the face of a constantly increasing demand for housing space." A recent study based on unpublished census material shows that, quite aside from the badly needed replacement of unfit and dilapidated buildings, there will be a need during the next ten years for, roughly, 7,700,000 additional dwelling units.

After he's grown the Brick Pavement now being laid *will serve him* for years and years . . .



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Exhibitor: Highway Exhibit, American Road Builders' Association, January 20-24, Cleveland, Ohio. 30th Annual Meeting National Paving Brick Association at Columbus, Ohio, January 29-30-31, 1936

THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City Water Board held liable for death of painter employed to work near insufficiently insulated electric power wires (Louisiana Court of Appeals: *Freibert v. Sewerage and Water Board of New Orleans*, 159 So. 767).

An incline of 5 inches in 21 inches of sidewalk held not an actionable defect although pedestrian fell and was injured (Oklahoma Supreme Court: *City of Ada v. Burrow*, 42 Pac. 2d, 111).

Notice to Chief of Police of fourth-class city of dangerous obstruction in street held notice to city (Kentucky Court of Appeals: *Criswell v. City of Jackson*, 77 S. W. 2d, 622).

Hospital laundry held governmental instrumentality, exempting city from liability for injury to laundry worker (Kentucky Court of Appeals: *Van Pelt v. City of Louisville*, 77 S. W. 2d, 942).

Contracts

Contract award without competitive bidding provided for by ordinance but not required by statute or charter held valid (Oklahoma Supreme Court: *Cimarron Utilities Co. v. City of Guymon*, 43 Pac. 2d, 143).

Previous satisfactory dealings with contractor and employment of local labor held proper considerations in determining who was "lowest and best bidder" on sewer job (Ohio Court of Appeals, Clarke County: *Altschul v. City of Springfield*, 193 N. E. 788).

Mobs

Under statute also applicable to cities, county held liable for dumping of milk by striking mobsters (Wisconsin Supreme Court: *Portage Co-operative Creamery Assn. v. Sauk County*, 257 N. W. 614).

Motor Carriers

Ordinance regulating interurban motor carriers held void as invading State Railroad Commission's powers and as being discriminatory (Appellate Department, Superior Court, Los Angeles County, California: *People v. Sackett*, 43 Pac. 2d, 1115).

Municipal Accounts

Mayor held to have bound city by employing public accountants to examine official records, etc. (New York Supreme Court, Appellate Division: *Heaton v. City of Cohoes*, 279 N. Y. Supp. 1).

Municipal Property

City held empowered to lease auditorium in city building for use as moving picture theater (North Carolina Supreme Court: *Cline v. City of Hickory*, 176 S. E. 250).

Baltimore Park Board held unempowered to lease city property for broadcasting station (Maryland Court of Appeals: *Hanlon v. Levin*, 179 Atl. 286).

Use of auditorium for boxing and wrestling matches held not improper (California Supreme Court: *Lynch v. City and County of San Francisco*, 43 Pac. 2d, 538).

Plan for acquisition of post office for city hall and of lot by United States for new post office, the grantor of the lot acquiring the old city hall property, upheld (South Carolina Supreme Court: *Carter v. City of Greenville*, 178 S. E. 508).

Municipal Utilities

Company furnishing electric energy to city under contract terminable at will held without standing to question validity of city's acquisition of own plant under Federal aid (United States District Court, Eastern District of Missouri: *Missouri Power & Light Co. v. City of La Plata*, 10 Fed. Supp. 653).

Public Service Commission order denying permission to city to operate electric plant in competition with private company upheld (Missouri Supreme Court: *State v. Public Service Commissi. i*, 82 S. W. 2d, 105).

Navigable Waters

City held liable for damage to steamer stranding upon pipe left in river (United States Circuit Court of Appeals, Sixth Circuit: *City of Detroit v. Wyandotte Transportation* Co., 76 Fed. 2d, 674).

Newspapers

Chief of Police held liable for confiscating newspaper erroneously regarded as illegal (Minnesota Supreme Court: *Fryberger v. Anderson*, 260 N. W. 625).

Official Bonds

Treasurer and sureties held liable on insolvency of depository bank where bank's bond was signed by individuals and not by surety company, as required by statute (Oklahoma Supreme Court: *Berger v. City of Vinita*, 40 Pac. 2d, 1). Clerk and surety held insurer of safety of funds deposited by him in bank instead of being paid to treasurer as required by ordinance (Same Court: *Wattenbarger v. City of Vinita*, 40 Pac. 2d, 6).

Official Eligibility

That Mayor and Aldermen were disqualified for non-payment of taxes and failure to take official oath held not to vitiate their official acts in bond issue proceedings (Missouri Supreme Court: *State v. Drain*, 73 S. W. 2d, 804).

That one chosen city attorney had had limited practice and had been engaged in other activities held not to disqualify him as not being a "practicing attorney"—a statutory requirement (Kentucky Court of Appeals: *Commonwealth v. Wooton*, 76 S. W. 2d, 594).

Ordinances

Ordinance forbidding prize drawings in places of public entertainment held invalid as fixing less punishment for violation than state law and as not being authorized by statute or charter (Texas Court of Civil Appeals: *City of Wink v. Griffith Amusement Co.*, 78 S. W. 2d, 1065).

Conviction of violating ordinance set aside because ordinance not shown to have been published, etc. (Alabama Supreme Court: *Sconyers v. Town of Coffee Springs*, 160 So. 554).

PWA Projects

NIRA provision for PWA loans to municipalities held void as attempted delegation of legislative power, but PWA administrator held not to exceed power in contracting to lend funds to county for self-liquidating hydroelectric plant (United States District Court, Western District, South Carolina: *Duke Power Co. v. Greenwood County, S. C.*, 12 Fed. Supp. 70). See, also, *Iowa Southern Utilities Co. v. Town of Lamoni*, 11 Fed. Supp. 581, where the United States District Court, Southern District of Iowa, upheld PWA contract for loan to defendant for electric plant.

Streets

County held not liable to filling-station owner for business lost during temporary closing of street while viaduct was building (Wisconsin Supreme Court: *Sheeley v. Chippewa County*, 258 N. W. 373).

Owner of unplatted tract in city held without redress against city, although vacation of street for railroad purposes rendered access more circuitous (Texas Commission of Appeals: *Lee v. City of Stratford*, 81 S. W. 2d, 1003).

Taxation

Gasoline tax held imposed against distributor, not consumer; hence state tax was payable on gasoline sold to city for municipal use (California District Court of Appeal: *Rio Grande Oil Co. v. City of Los Angeles*, 44 Pac. 2d, 451). For like reason, sales tax was payable on rock and gravel sold to city (Same Court: *Graham Bros. v. City of Los Angeles*, 44 Pac. 2d, 452).

Taxpayer held not entitled to compel county to collect back taxes from a corporation that built a plant on the faith of remission of taxes, although the county's agreement to remit taxes was invalid (Tennessee Supreme Court: *State v. American Glanzstoff Corp.*, 72 S. W. 2d, 775).

Traffic Regulations

Ordinance requiring automobile drivers to show fitness and obtain licenses upheld (Tennessee Supreme Court: *Rutherford v. City of Nashville*, 79 S. W. 2d, 581).

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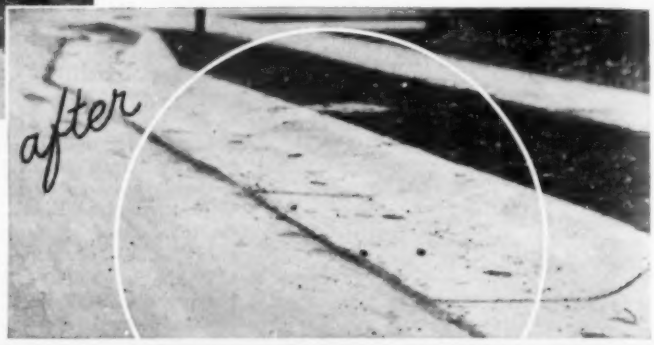

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Prices quoted do not include postage, unless so stated

Sewage Treatment

American Sewerage Practice, Volume III; Disposal of Sewage.—By Leonard Metcalf and Harrison P. Eddy. Third edition. Revised by Harrison P. Eddy. McGraw-Hill Book Company, Inc., New York. 1935. 836 *pp.*, 227 *illustrations*; 156 *tables.* $7.00 *from* THE AMERICAN CITY.

Nearly two decades have passed since the second edition of this third volume of the trio on American Sewerage Practice was published. Consequently, the new edition contains many revisions. Comparisons of the older and newer processes of sewage treatment are offered in order that the book may be historically and technically complete. Many of the chapter heads have been revised for the sake of clarity and rearranged for effectiveness. The sanitary engineering profession and sewage-works operators will welcome this new volume.

Diesel Engines

Diesel Engineering Handbook.—Edited by L. H. Morrison. Diesel Power Publications, New York. 1935. 824 *pp. Illustrated.* $5.00 *from* THE AMERICAN CITY.

Page 787 remarks the large number of municipal electric plants powered with diesel engines, and the wide variations in generating costs due to character of load, operator's skill and other items —good reasons for buying a copy of the eighth edition of this well-known book and getting out of it whatever will contribute to the greater success of municipal utilities. There are 40 chapters, beginning with basic diesel principles and covering all phases of operation, including the writing of specifications, and closing with plant survey and automatic diesel plants. One chapter describes briefly the high-speed engines of 22 manufacturers and points to the swift trend to high speed, less weight, lower cost. The vitality of this industry is indicated by total sales amounting to 2,690,000 hp during the six depression years 1930-35, compared with 2,160,000 hp during the preceding six years 1924-29. The principal activity in portable diesels has been their application to tractors, where their success and acceptance has permitted quantity production and low cost. Of all the users of diesel engines, municipal plants are placed fifth, with 435,200 installed horsepower.

Consolidated Gas

Consolidated Gas Company of New York.—By Frederick L. Collins. Published by the Company. XIII + 398 pp. and index.

As a history written for the Consolidated Gas Co., this de luxe volume is in the nature of a biography penned by a friend, to be read by the subject's children, not to point out to them the follies of their father but to give substance to their natural reverence. It begins with torches and oil, reaching 1885 in the middle of the book, when Consolidated was producing less than 5 million cubic feet of gas compared with its 38 billion feet in 1933. With production multiplied 7,600 times in 48 years, the latter half of the book is concerned with commercial achievement, including the development of electric power and the New York and Brooklyn Edison companies. There is much of interest in the collection of data and old prints, particularly as "The Consolidated Gas Co. of New York, through its control of The New York Edison Co., Brooklyn Edison Co., Inc., The United Electric Light and Power Co., the New York and Queens Electric Light and Power Co., the Bronx Gas and Electric Co. and the Westchester Lighting Co., now heads the largest central station organization in the world."

Planning

"State Planning: A Review of Activities and Progress," is the title of a 310-page report of the National Resources Board, excerpts from an advance copy of which were published on pages 61 and 62 of the December number of THE AMERICAN CITY. The report, containing numerous diagrams, tables and maps, dated June, 1935, and published last month, is now for sale by the Superintendent of Documents, Washington, D. C., for 75c (paper cover).

Traffic and Safety

Collisions in Street and Highway Transportation.—By Barry Mulligan. Dorrance & Co., Philadelphia. 1936. 310 *pp., illustrated.* $3.15 *postpaid from* THE AMERICAN CITY.

Written in textbook style, this book is intended for public officials, municipal employees and transportation men generally, in addition to its appeal to students and the general public. In the opinion of the author, the highway and not the vehicle or the driver is the chief problem to be studied in analyzing the major factors in street or road collisions. The universal use of one-way streets, as the most fundamental suggestion offered in the book, is the subject of rather full discussion. But many other proposals are offered, orthodox or novel, which merit careful study by traffic directors and engineers. In place of an ordinary table of contents there is an excellent topical outline of the 322 sections; but the book lacks an alphabetical index which would have greatly facilitated its use for reference purposes.

Safe and Sane Use of the Highways.—By Thomas H. Allen, Director of Traffic Safety, Superior, Wis. E. M. Hale & Co., Milwaukee, Wis. 1935. *ix* + 108 *pp., illustrated.* $1.20 postpaid *from* THE AMERICAN CITY.

Safety on the Highways.—A practice book to accompany the foregoing. 96 *pp., illustrated.* 32 *cents, postpaid.*

These two books should prove exceedingly valuable for classroom use, especially in the seventh, eighth and ninth grades. The material in both is based on the Uniform Act Regulating Traffic on the Highways, but in order to facilitate the checking of local laws and ordinances against the explanations offered, the author has listed in the Appendix to "Safe and Sane Use of the Highways" those states having similar statutes and the exact statute number of each regulation in each state.

The chapter headings in the textbook include: Studies of the Highway Traffic Problem; Use of the Highways; Rules for Pedestrians; Operation of Vehicles; Rules for Passing; Right of Way; Speed Regulations; Turning, Backing, Parking; Arterial, Alley, Street Car and Miscellaneous Rules; Emergency Vehicle Regulations; Lights and Other Equipment; Conclusion.

In the practice book there are twelve units, each including a pre-test, a series of lessons, a practice exercise, a diagnostic test, and a supplementary exercise.

Sewage Treatment

A treatise attempting to show the feasibility of chemical coagulation as a means of increasing the removal of suspended solids at the Grand Rapids sewage disposal plant has been published by the Sewage Treatment Works of Grand Rapids, Mich. Naseeb G. Damoose is the author of this 80-page mimeographed report.

Building Codes

To aid those interested in reducing the deplorable loss of life that occurs annually in fires in buildings, the Bureau of Standards of the Department of Commerce has conducted surveys of current practice in providing exits and of the rates at which people can effect their escape through different kinds of exits. The methods employed in the surveys, and the results, are presented in a 76-page pamphlet entitled "Design and Construction of Building Exits," issued October 10, 1935, and obtainable from the Superintendent of Documents, Washington, D. C., for 10c.

Graphic Presentation

Twenty-one exceptionally striking and effective charts prepared in 1935 by the Graphic Unit of the Research Section of the Federal Emergency Relief Administration are presented in a pamphlet entitled "On Relief," obtainable from the Division of Research, Statistics and Finance of the FERA.

Population—Growth and Distribution

The Growth and Distribution of Population.—By S. Vere Pearson. John Wiley & Sons, New York. 1935. 448 *pp.* $4.00 *from* THE AMERICAN CITY.

This is a notable new book on human geography and on the relation of man to his environment. It is significant that the subjects for which more than twelve entries each are to be found in the topical index are land, land assessment, landlordism, taxation, and town planning. Among the chapter heads are The Growth of Cities, Water Supplies, Health in Town and Country, The Garden City Idea, Ground Values and Property Appraisals, Traffic Troubles, and Housing. Though by an English author, the geographical scope of the work is world-wide. The index to places contains, for example, 13 entries for China, 26 entries for the United States of America, 34 for England, 25 for France, 18 for Germany, 10 for India, 14 for Japan, 11 each for Italy and Russia, and smaller numbers for various other countries.

The author favors a system of taxation whereby land-holding will become unprofitable except to land users; and he predicts that "not long after this most fundamental reform has been introduced everyone will find themselves taking interest in good planning."

Training for Public Service

"Training for the Public Service: a Report and Recommendations," edited by Morris B. Lambie, summarizes the discussions, resolutions and recommendations of a three-day conference held at Princeton, N. J., in June, 1935, under the auspices of the Public Administration Clearing House. The 28 conferees included university presidents, deans, professors of government, civil service commissioners, public administrators, personnel officers, and representatives of state leagues of municipalities and other associations of public officials. This 64-page pamphlet is Publication No. 49 of the Public Administration Service, 850 E. 58th St., Chicago. 50c.

Municipal Debts

For cities of over 50,000 population, "The Municipal Debt Load in 1935" is discussed and tabulated in a pamphlet under that title by Frederick L. Bird, Director of Municipal Research, Dun & Bradstreet, Inc., 290 Broadway, New York. Among the subjects discussed are The Need for Debt Control; The Basis for Municipal Debt Comparison; Municipal Debts and Community Resources; Comparison of Per Capita Debts; Debt Casualities of the Depression; Possible Lines of Control. The eight tables cover Comparative Decline in Assessed Valuations, Percentage of Population Making Income Tax Returns, 1933; Retail Sales Per Capita; Median Per Capita Debts and Debt Ratios; The Range in Direct and Overlapping Per Capita Debts; Cities Showing Wide Variations from Median Debt; Averages of Per Capita Municipal Debts by States, Resources and Debts.

Municipal Finance Legislation

A bird's-eye view of the enactments dealing with problems of municipal finance of the 47 state legislatures which met in 1935, is presented in "Municipal Finance Legislation, 1935: a Digest," compiled by Irving Tenner. For the first time such a sweeping survey is made available promptly after the close of the sessions, through the efforts of the Municipal Finance Officers' Association. The pamphlet first gives a general picture of legislative trends, and then presents paragraph-digests of laws. The variety of problems with which the legislatures have had to deal is shown by the chapter heads of the pamphlet: Taxes and Special Assessment; Debt; Tax, Debt and Expenditure Limitation and Control; New Sources of Revenue; Accounting and Budgeting; Municipal Pensions; and Depositories. This 48-page pamphlet is Publication No. 50 of the Public Administration Service, Chicago. 60c.

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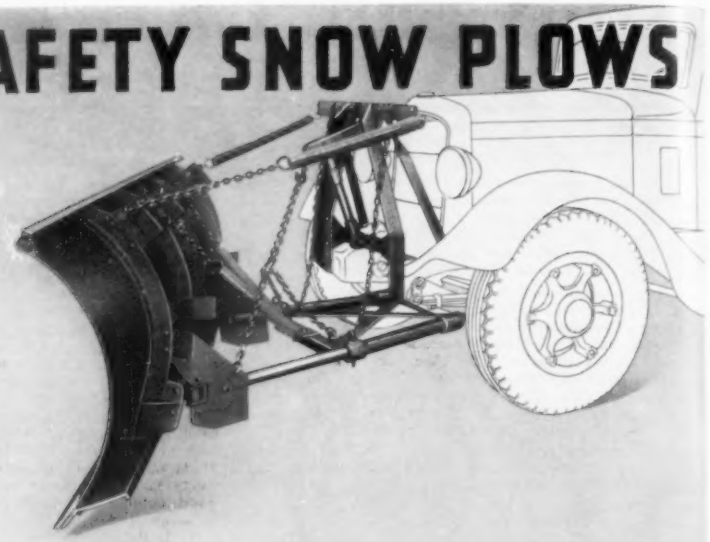

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Town Planning for Schools

The recently organized New England Town Planning Association is concentrating on the public schools as the best avenue for stimulating intelligent interest in land and community planning. Its first publication, a 16-page pamphlet entitled "Town Planning for Schools," not only concerns itself with the physical development of a community, but will be found useful in giving to public school pupils an insight into various forms of community activities and the responsibilities of representative departments of local government. 10c, postpaid. (Apply to the Association, 50 Congress St., Boston, Mass.)

Infant Mortality

"Statistical Report of Infant Mortality for 1934 in 985 Cities of the United States" is a report of 32 quarto pages, published by the American Child Health Association, August, 1935. It covers the urban localities of continental United States and of Hawaii credited with a population of 10,000 or over in the 1930 census. It is stated that there seems to be definite evidence of a slight increase in the infant mortality rate during 1934; and that "it is reasonable to assume that the reduction in public health effort, resulting from the curtailment of budgets for health departments, has been a contributing factor." (Apply to the Association, 50 W. 50th St., New York.)

Planning

A "Community-Planning Primer for Illinois" is the title of a 1935 pamphlet by Karl B. Lohmann, Professor of Landscape Architecture of the University of Illinois. Within the space of 24 pages Professor Lohmann has compressed many practical suggestions as to procedure in the preparation and adoption of a comprehensive or master plan; planning for the city, village or town in Illinois; local development or subdivision plans; regional planning; and citizen, official, and technical participation. As an appendix, a Typical Score Sheet for Community Planning and Physical Improvement is included. (Apply to the Bureau of Community Planning, College of Fine and Applied Arts, University of Illinois, Urbana.)

Public Service Personnel

"Government by Merit," by Lucius Wilmerding, Jr. (294 pp., $3.00) and "Minutes of Evidence" (721 pp., $6.00) are two new volumes in the admirable series of monographs and reports published by the McGraw-Hill Book Co., of New York, for the Commission of Inquiry on Public Service Personnel. The purpose of Mr. Wilmerdings' monograph is to suggest the methods and devices by which the offices of government, Federal, state and local, may be filled with men of competence and character. "Minutes of Evidence" is a volume of testimony taken before the Commission of Inquiry on Public Service Personnel at various places in the United States.

Other Reports Received

ALBANY, N. Y.—"Port of Albany," Annual Report of the Albany Port District Commission, June 30, 1935. 72 pp.

COLUMBIA, MO.—"A City Plan for Columbia, Missouri," report of the City Planning and Zoning Commission, 1933-1935. 63 quarto pp.

COOK COUNTY, ILL.—Annual Message of Clayton F. Smith, President, Board of Commissioners of Cook County, and President, Board of Forest Preserve Commissioners of Cook County, for the fiscal year of 1935. 139 pp.

PASADENA, CALIF.—Twenty-second Annual Report of Pasadena Water Department, 1934-1935. 70 pp.

Proceedings of the Eleventh Annual Meeting of the National Shade Tree Conference, Philadelphia, Pa., August 28-30, 1935. 167 pp.

"Real Estate in Denver: Assessed Valuations, Tax Sales, Mortgage Foreclosures, and Mortgages and Trust Deeds Files," Business Study No. 78 of the University of Denver Reports, September, 1935.

"Municipal Control of Retail Trade in the United States," by The Bureau for Research in Municipal Government, Harvard University; Franklin W. Ryan, Research Associate, and Miller McClintock, Director. Foreword by N. H. Engle, Acting Director, United States Bureau of Foreign and Domestic Commerce. Published December, 1935, by the *National Municipal Review*, New York. 75 cents.

CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

JANUARY 13-16.—MIAMI, FLA. (400)
Associated General Contractors of America, Inc. Annual convention. Managing Director, E. J. Harding, 222 Munsey Building, Washington, D. C.

JANUARY 14-17.—NEW YORK. (100)
New York State Sewage Works Association. Annual meeting. (Hotel Astor.) Secretary-Treasurer, A. S. Bedell, State Department of Health, Albany, N. Y.

JANUARY 15-17.—NEW YORK.
American Society of Civil Engineers. Annual meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

JANUARY 18-19.—WASHINGTON, D. C.
American City Planning Institute. Annual meeting. (Mayflower Hotel.) Secretary, Howard K. Menhinick, Robinson Hall Annex, Cambridge, Mass.

JANUARY 20-24.—CLEVELAND, OHIO.
American Road Builders' Association. Annual Road Show. Engineer-Director, Charles M. Upham, 938 National Press Building, Washington, D. C.

JANUARY 20-22.—WASHINGTON, D. C. (100)
American Society of Landscape Architects, Inc. Annual meeting. (Hotel Mayflower.) Executive Secretary, Bradford Williams, 9 Park Street, Boston, Mass.

JANUARY 20-24.—LAFAYETTE, IND. (800)
Purdue Road School. Address: Prof. Ben H. Petty, Engineering Extension Department, Purdue University, Lafayette, Ind.

JANUARY 23.—CLEVELAND, OHIO. (75)
Association of Asphalt Paving Technologists. Annual meeting. Secretary-Treasurer, W. J. Emmons, 1224 East Engineering Building, University of Michigan, Ann Arbor, Mich.

JANUARY 2-31.—CHICAGO, ILL.
American Society of Heating and Ventilating Engineers. Annual meeting. (Palmer House.) Secretary, A. V. Hutchinson, 51 Madison Avenue, New York.

JANUARY 28-31.—NEW YORK.
American Institute of Electrical Engineers. Annual winter convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JANUARY 29-31.—COLUMBUS, OHIO. (300)
National Paving Brick Association. Annual meeting. (Deshler-Wallick Hotel.) Managing Director, G. F. Schlesinger, 1245 National Press Building, Washington, D. C.

FEBRUARY 3-8.—COLLEGE STATION, TEXAS. (50)
Texas Water Works Short School. Annual session. Address: V. M. Ehlers, Austin, Texas.

FEBRUARY 12-14.—ATLANTIC CITY, N. J.
Association of Highway Officials of North Atlantic States. Annual convention. (Hotel Ambassador.) Secretary-Treasurer, A. Lee Grover, Secretary, State Highway Commission, Trenton, N. J.

FEBRUARY 13-15.—SPOKANE, WASH.
Pacific Northwest Regional Planning Commission. Conference. (Davenport Hotel.) Chairman, Marshall N. Dana, 220 Federal Court House, Portland, Ore.

FEBRUARY 14.—MOORESTOWN, N. J.
South Jersey Association of Water Superintendents. Regular meeting. Secretary, Walter Spencer, 2707 Bethel Avenue, Merchantsville, N. J.

FEBRUARY 18-20.—ANN ARBOR, MICH.
Conference on Highway Engineering—University of Michigan. Secretary, R. E. Morrison, University of Michigan, Ann Arbor, Mich.

FEBRUARY 25-27.—CHICAGO, ILL. (350)
American Concrete Institute. Annual convention. (Palmer House.) Secretary, Harvey Whipple, 641 New Center Building, Detroit, Mich.

MARCH 23-25.—LEXINGTON, KY.
American Water Works Association—Kentucky-Tennessee Section. Annual meeting. Executive Secretary, F. C. Dugan, 532 West Main Street, Louisville, Ky.

MARCH 25-28.—LITTLE ROCK, ARK.
Southern Commercial Secretaries' Association. Annual meeting. Secretary-Treasurer, Stanley Draper, Manager, Chamber of Commerce, Oklahoma City, Okla.

MARCH 30—APRIL 3.—NEW YORK. (150)
Building Officials' Conference. Annual convention. Secretary-Treasurer, William F. Hurd, Commissioner of Buildings, Indianapolis, Ind.

APRIL 1-3.—HAMILTON, ONT. (350)
American Water Works Association—Canadian Section. Annual meeting. Secretary-Treasurer, Dr. A. E. Berry, Ontario Department of Health, Parliament Buildings, Toronto, 5, Ont.

APRIL 7-9.—LAFAYETTE, IND.
American Water Works Association—Indiana Section. Annual meeting. (Purdue University.) Secretary-Treasurer, J. A. Bruhn, Indianapolis Water Company, Box 855, Indianapolis, Ind.

APRIL 7-9.—SAVANNAH, GA.
American Water Works Association—Southeastern Section. Annual meeting. (Hotel De Soto.) Secretary-Treasurer, W. H. Weir, 4 Capitol Square, S. W., Atlanta, Ga.

APRIL 9-10—EVANSTON, ILL.
American Water Works Association—Illinois Section. Annual convention. Secretary-Treasurer, W. D. Gerber, Room 57, Chemistry Building, Urbana, Ill.

APRIL 17-18.—BUTTE, MONT. (75)
American Water Works Association—Montana Section. Annual meeting. Secretary, Herbert B. Foote, State Board of Health, Helena, Mont.

APRIL 27-30.—WASHINGTON, D. C.
Chamber of Commerce of the United States of America. Annual meeting. Secretary, D. A. Skinner, 1615 H Street, N. W., Washington, D. C.

APRIL 27.—HARTFORD, CONN. (100)
New England Sewage Works Association. Spring meeting. Secretary, F. W. Gilcreas, State Department of Health, New Scotland Avenue, Albany, N. Y.

MAY 7-8.—BIRMINGHAM, ALA. (300)
Alabama League of Municipalities. Annual convention. Executive Secretary, Ed E. Reid, Montgomery, Ala.

MAY 11, WEEK OF.—ATLANTIC CITY, N. J. (452)
National Fire Protection. Annual convention. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

MAY 14-16.—ABERDEEN, WASH.
American Water Works Association—Pacific Northwest Section. Annual meeting. Secretary, Ernest C. Willard, 720 Corbett Building, Portland, Ore.

MAY 25-28.—NEW ORLEANS, LA. (1,000)
National Association of Purchasing Agents. Annual convention. Secretary-Treasurer, G. A. Renard, 11 Park Place, New York.

JUNE 1.—PHILADELPHIA, PA.
Pennsylvania State Association of Township Commissioners. Annual convention. (Bellevue Stratford Hotel.) Secretary-Treasurer, H. A. Fritschman, Eagle Darby Roads, Upper Darby, Pa.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 22-26.—PASADENA, CALIF.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JUNE 26-27.—PITTSFIELD, MASS.
New England Association of Commercial Executives. Annual meeting. Secretary, Lewis W. Newell, Salem, Mas.

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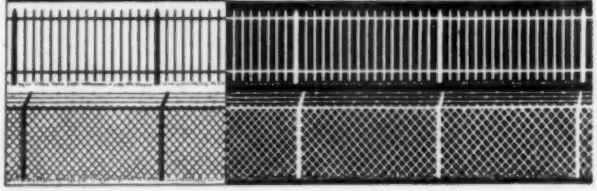


NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Centrifugally Cast Iron Pipe Now Threaded

Super-deLavaud cast iron pipe is now being manufactured in "steel pipe sizes" with threaded joints. There are two distinct types of service for which threaded cast iron pipe may be used: pressure service for water, gas, steam, or similar gases; and liquids and drainage service. Pressure pipe is made to meet the requirements of Federal Specifications WW-P-421 and is supplied in three classes—standard, extra-strong, and double-extra-strong. Drainage pipe, used for waste, vent and drain work, is a lighter pipe for use in buildings and elsewhere where a tight screw-coupled joint is needed. Drainage pipe is made to meet the requirements of Tentative Federal Specifications TS-2068, Type A.

The fact that Super-deLavaud pipe is supplied in "steel pipe sizes" makes it possible to use it in conjunction with standard screw joint fittings of any make without the need of an adapter. It is readily machinable and may be drilled, tapped, cut and threaded with the tools in the average plumber's and steamfitter's kit.

Each full length of threaded Super-deLavaud pipe is cast in one piece, insuring homogeneousness and freedom from hard spots. It is regularly supplied with an American Standard pipe thread on each end for use with a coupling of standard design, but may be furnished with plain ends if so specified. Unless otherwise specified, all pipe is coated inside and outside with bituminous paint. If required to meet service conditions, pipe will be furnished with special linings. Threaded pipe may also be supplied in Ni-Resist metal or other nickel alloy.

Every piece of Super-deLavaud cast iron pipe with threaded ends is subjected to a hydrostatic pressure test. This assures a pipe free from all defects and of sufficient strength to withstand stresses from chain or Stillson wrenches employed in assembling the joint.

More than 8,000,000 feet of Super-deLavaud pipe with bell-and spigot joints has been sold in the past two years for municipal water, gas and sewer lines. This record is indicative of the high regard in which cast iron pipe, centrifugally cast by the patented processes of the United States Pipe and Foundry Co., Burlington, N. J., is held.

Additions to Personnel of Pittsburgh Equitable

Pittsburgh Equitable Meter Co., Pittsburgh, Pa., has announced the addition of two members to the Research and Product Development Section of its Engineering Department at Pittsburgh, Pa. E. M. Cloran, a Harvard University graduate of 1928, who has been associated with Stone and Webster Corporation, of Boston, the Atmospheric Nitrogen Corporation of Hopewell, Va., and the Consolidated Ashcroft Hancock Corporation of Bridgeport, Conn., and J. H. Evans, University of Oklahoma, 1933, who has been with the Geological Department of the Carter Oil Co. and Humble Oil Co., are the two new men who w"' work in the physical laboratories under the direction of Allen D. MacLean and the immediate supervision of Research Head L. M. Van der Pyl.

H. D. Leisenring has joined the sales force of the Pittsburgh Equitable Meter Co. and its subsidiary, the Merco Nordstrom Valve Co. He will operate from the home offices in Pittsburgh and will sell and service Pittsburgh water meters and Nordstorm valves.

Jesse W. Roberts, Prominent Filter Manufacturer, Dies

Jesse W. Roberts, President, Roberts Filter Manufacturing Co., Darby, Pa., died on December 7 following an operation a few days previously. Mr. Roberts' pleasing personality made many firm friends for him both in the business and the social circles in which he moved. Besides his widow, he is survived by three sons, Charles, John, and Jesse W. Roberts, Jr., of Sharon Hill, Pa.

A Specialized Mower for Highway Shoulders

A specialized piece of mowing equipment designed to meet conditions on highway shoulders as well as in large parks has been developed by the Centaur Tractor Corporation, Greenwich, Ohio. This mower is said to operate successfully on any slope which is not steep enough to cause side slip. It is designed wide so that it will side slip rather than tip over on grades. It is a front-wheel-drive unit with 34/6.50 tires mounted in front stabilizing the tractor in ditches and on slopes. It is equipped with a grinder and power belt for knife grinding, together with two extra knives and a full set of repair equipment such as guards, rivets, knives, punches, etc.

The mower is operated by one man and carries a 6-gallon gasoline tank, which is sufficient for one day's operation. The manufacturer offers to demonstrate the mower to state and county highway officials and municipal park and golf course officials to show its ability to handle grueling work.

THE CENTAUR HI-WAY MOWER IN ACTION

A New Model 30 Tractor for Municipal Work

The new Model "30" Cletrac tractor announced by the Cleveland Tractor Co., Cleveland, Ohio, develops 33 horsepower at the drawbar and 38 belt horsepower. The power unit is a 6-cylinder, $3\frac{3}{4}$ x $4\frac{1}{4}$ engine with force feed lubrication to the crankshaft connecting rods and timing gears. Six-volt starting and ignition units are standard equipment. There are three speeds forward—1.75, 2.75 and 4.25 mph. Steering is by the Cletrac controlled differential. The underslung drawbar permits pull to the track frame shaft without putting an excessive load on the transmission case. The operator is fully protected, and the steering and throttle control levers are located within easy reach.

New Stretcher and Puller for Cables and Fencing Speeds Installations

A utility tool suitable for many applications involving stretching, pulling, binding or lifting has been announced by the Welded Chain Division, American Chain Co., Inc., Bridgeport, Conn. The complete device includes the frame with operating parts, a 10-foot stretcher chain and a 5-foot anchor chain. It is capable of handling loads up to 4,000 pounds.

When in use, the stretcher chain fits over teeth in the sprocket wheel, and power is supplied by raising and lowering the handle. The axle of the handle being eccentric, it transmits power through two pawls engaged in the wheel. One pawl is always in position, therefore the wheel cannot slip. This Acco utility jack, without chains, weighs 34 pounds.

(Photograph courtesy of International Newsreel)

Headline Cases.. H-H Inhalators on the job Saving Lives

Gas or smoke asphyxiations, drownings, electric shock cases,—*all forms* of respiratory failure are best treated with H-H Inhalators used in conjunction with artificial respiration . . . *officially accepted* by the Council on Physical Therapy of the American Medical Association . . . *approved* by the American Gas Association and the Association of Police and Fire Surgeons . . . *used* literally everywhere. If your men are exposed to hazards of this type, send for Bulletin CA-1, or better still, let us arrange a practical demonstration of the H-H Inhalator for you.

MINE SAFETY APPLIANCES CO.

General Offices: Braddock, Thomas & Meade Sts., Pittsburgh, Pa.
District Representatives in the Principal Cities

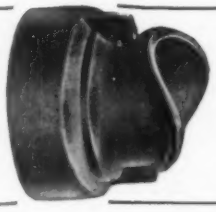
M. S. A. Products include Breathing Apparatus . . . Inhalators . . . Masks of all Types . . . Gas Indicators . . . Gas Detectors . . . M. S. A. Safety Goggles . . . M. S. A. Protective Hats and Caps . . . Edison Electric Cap Lamps . . . Safety Clothing . . . First Aid Equipment . . . Submarine Escape Apparatus. Descriptive Bulletins will be sent on request.

Hole Broken Through

M-D CUT-IN CONNECTIONS

The M-D Cut-In Connection for sewers is a light, cast-iron fitting with bell and spigot ends for connecting a house service with a main sewer pipe without the necessity of placing

JOSEPH G. POLLARD CO., INC.



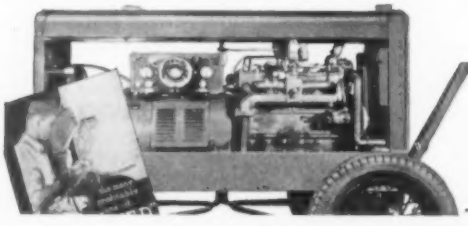
FOR SEWERS

a Y-branch or T-branch in the sewer line.

Made for use in both terra cotta and concrete pipe sewers of all sizes. It is furnished for making either 90° or 45° connections. Fits inside of sewer neatly.

142 Ashland Place, Brooklyn, N. Y.

Completed Job with Concrete Envelope



CUT MAINTENANCE COSTS IN HALF

FREE

Send for this valuable book, "The Many Profitable Uses of Simplified Arc Welding." IT'S FREE if you're interested in the new welder savings.

This New 40-Volt Gas Drive Arc Welder saves expensive repair costs. You can take it to the job and save time and labor costs. Eliminates the need for expensive repair parts and costly labor shut-downs on your work. Can be used for repairs, steel building construction forms, or work—New 40-Volt Ratings give 60% greater capacity and greater welds on both light and heavy work.

EASY RENTAL TERMS
30 DAYS' TRIAL

. . . to prove savings will easily pay for this new welder. Write today for complete information, no obligation.

ONE OF THE WORLD'S LARGEST BUILDERS OF ELECTRIC ARC WELDERS

THE HOBART BROS. CO. BOX AC-16 TROY, OHIO

SIMPLEX VENTURI TYPE METERS

ACCURATE - RELIABLE - SIMPLE
EASY TO CHECK AND ADJUST

Write for Bulletins

SIMPLEX VALVE & METER CO.
6743 Upland Street, Philadelphia, Pa.

Manufacturers of Meters and Controllers of Venturi Type; Gauges; Air and Vacuum Valves; Air Release Valves; and other Water-Works Devices.

RENSSELAER VALVES COREY HYDRANTS

Tapping Sleeves, Tapping Valves, Crosses, Split Repair Sleeves, Post Indicators, Floor Standards, Air Valves, Valve Boxes, Grease Cases, Etc.

Write for Catalog "G"

RENSSELAER VALVE CO.
TROY NEW YORK

During January we hope you will remember to mention THE AMERICAN CITY

A Motor-Vehicle-Safety Inspection System

The testing devices used in the Bendix Civic Safety Clinic have been designed by the engineers of the Bendix Products Corporation, 401 Bendix Drive, South Bend, Ind., for the arduous and important work required in vehicle safety testing. The first item of equipment is the Bendix electrical recording, pivoted wheel alignment tester. Staggered installation allows the testing of each wheel separately —the generally accepted method. This instrument consists of two independently operating boards, single pivot fixed longitudinally, free to move laterally on large roller bearings. A misaligned wheel traveling over the instrument creates lateral movement of the board, which closes an electrical contact indicating the result on the lamp panel. An accurately aligned wheel will not flash the lights. The contacts are adjustable to allow setting tolerances. Electric recording is used to obviate a loss in efficiency or the creation of error due to friction of a mechanical hook-up to an indicating instrument.

The second item is the Bendix adjustable headlight tester. This adjustable screen type tester accurately tests horizontal aim, is said to be the only type that allows the car owner to see the result of the test, and is quick and accurate in operation. The inspector does not have to walk into the line of moving vehicles to use it, and it complies in general with existing state laws. This instrument is a shielded screen mounted to slide vertically between two standards. Since it is fully counterweighted, no effort is required to raise or lower it, and an ingenious support cable hook-up insures its being level and accurate in any position. To operate, the screen is set to the headlight height on the left-hand or primary scale. The right-hand, or secondary, scale is to compensate for legal loading distances.

The third item is the Bendix brake tester of the full dynamic type. It reproduces actual road conditions by rotating the braked wheel with power and indicating on a dial the effective stopping force of that wheel in pounds. It tests the brake effectiveness in all positions of contact between the shoe and the drum, and is the only type which will indicate out-of-round drums and glazed or greasy lining. It gives also the braking capacity of each brake, with the total stopping force correctly indicated in pounds.

Municipalities that are now considering or have initiated campaigns for the compulsory, periodic inspection of motor vehicles should give the Bendix-Feragen Civic Safety Clinic a thorough investigation.

NEW TRUEHEDGE AND COMMON BARBERRY

Water-Works Salesman in Midwest Dies

Joseph C. Atwell, who for nine years represented the A. P. Smith Manufacturing Co., of East Orange, N. J., in the Indiana and Michigan territory, and made his home in Detroit, Mich., died on December 15, 1935. He is survived by his wife, Lillian, his daughter, Mrs. Florence Rockefeller, and his son, Robert J. Atwell.

Truehedge; Fine, Upright, Hardy

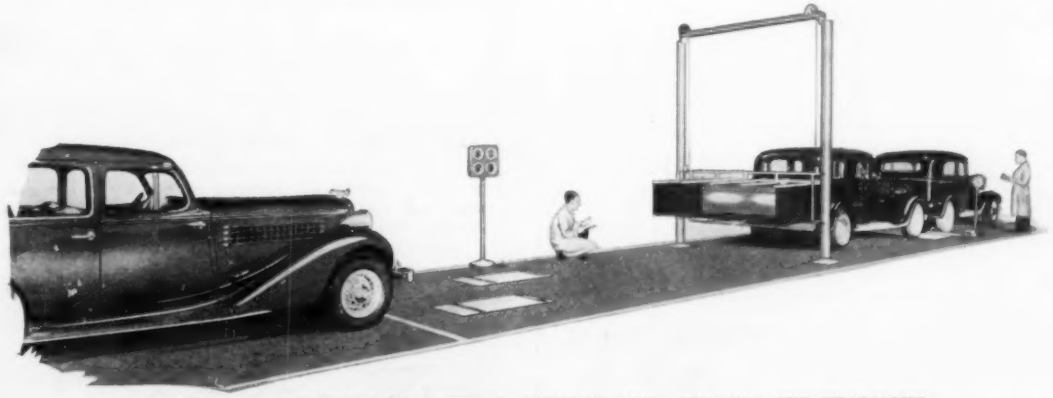
"The tangled barberry bushes," sung of in "Hiawatha," have been untangled, so to speak, and are now available in as straight and decorative form as is the equally historic boxwood. The new plant, called Truehedge Columnberry and sold by The Cole Nursery Co., of Painesville, Ohio, was brought out in July, 1934, and already more than 180,000 have been purchased and found to be hardy and inexpensive to maintain. "We expect that as these plants grow older," says Donald Wyman, of Cornell's Agricultural Stations, "they will make a perfect hedge which will need little if any trimming."

Martin F. Noonan, Superintendent of Public Works of Providence, speaks of the plants' freedom from disease. "They are a good variety," he says, "and our impression is that they will make a better hedge than most of the other species."

Paul A. Wells, City Forester of the Department of Parks of Syracuse, reports that plantings in downtown parks show a very good growth, neat appearance, good foliage and color, and low maintenance cost. "Their form," writes Mr. Wells, "is such that a minimum amount of trimming is necessary, and they seem to be quite resistant to adverse climatic and smoke and dust conditions of such parks."

Truehedge Columnberry can also be obtained from the distributors listed below:

Adams Nursery, Inc., Springfield, Mass.; Bay State Nurseries, Framingham and North Abington, Mass.; Jackson & Perkins Co., Newark, N. Y.; R. M. Kellogg Co., Three Rivers, Mich.; Lester C. Lovett, Little Silver, N. J.; Henry A. Dreer, Inc., Philadelphia; I. E. Ilgenfritz' Sons Co., Monroe, Mich.; Shenandoah Nurseries, Shenandoah, Iowa; E. D. Smith & Sons, Limited, Winona, Ont.; Storrs & Harrison Co., Painesville, Ohio.

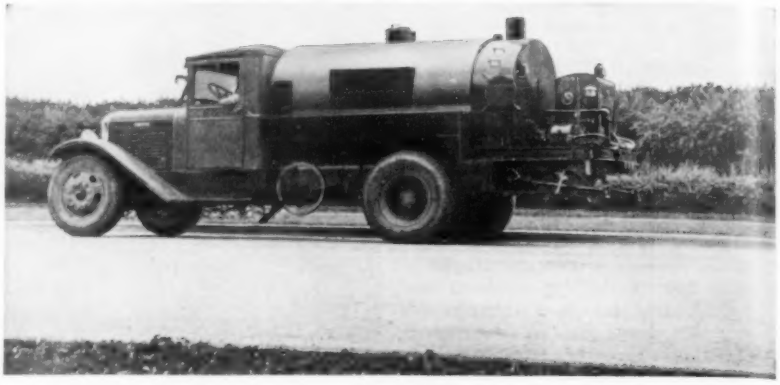


GENERAL VIEW OF THE BENDIX SAFETY INSPECTION LANE, SHOWING THE HEADLIGHT TESTER IN OPERATION

TWO OUTSTANDING ROAD SHOW FEATURES

The Littleford Model "C" Pressure Distributor

Illustrated at right is the most modern machine of its type on the market today. Important features are—spray bars that do not drip; one single valve controls all functions; one low-pressure burner that thaws all lines in three minutes and heats material in five minutes. Many other advanced developments are incorporated. Ask for Bulletin L-14 after looking the machine over.



The Traf-O-Spray

A new machine, proven by actual use, to spray painted highway lines many times faster and use less paint than any other method.

You'll see these machines and others at BOOTH E-7 at Road Show. Look them over and ask for new bulletins with full descriptions.

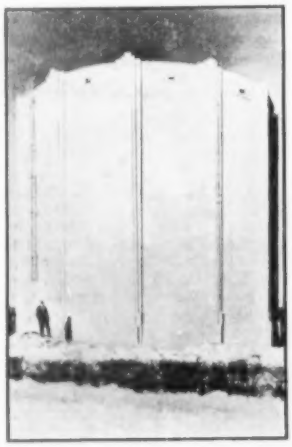
LITTLEFORD

Road Maintenance Equipment

SINCE 1900

LITTLEFORD BROS. 500 E. PEARL ST. CINCINNATI, O.

THE WILLIAM S. HEWETT SYSTEM of Reinforced Concrete Construction as applied to RESERVOIRS, TANKS and DOMES



Water Tank, 676,000 Gallons Capacity, Waukesha, Wis.

In the design of reinforced concrete structures for the storage of water Engineers have for years had difficulty with structures cracking due to shrinkage in the concrete and the elasticity of the steel reinforcing.

The William S. Hewett System solves these problems and results in perfectly logical, waterproof and economical structures. Our Bulletin "A" gives illustrations of structures built. Bulletin "B" discusses the theories upon which the system is based. Every designer should have this information before making up plans for any structure for the storage of liquids.

These structures are simple both in design and execution and can be built by local builders using local labor.

THE WILLIAM S. HEWETT SYSTEM

549 W. Washington St. CHICAGO, ILL.

O. K. CHAMPION SEWER CLEANERS

Power and Hand Operated

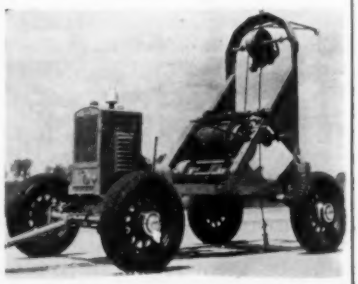
Satisfaction Guaranteed

Our prices will fit Village, Town, City

Our Sewer Rods are Fast Sellers

Write for Descriptive Literature and Prices

CHAMPION CORP.
4716 Sheffield Ave., Hammond, Ind.



LOCAL WORK for MORE LOCAL WORKERS

LOCAL labor is not only used for the laying but also for the manufacturing of Lock Joint Pressure Pipe, thus greatly relieving the local unemployment problem.

Lock Joint Pipe Co. Est. 1905 Ampere, N. J.

LOCK JOINT REINFORCED CONCRETE PIPE

PRESSURE - SEWER - CULVERT

THE M.S.A. LIGHT-WEIGHT OXYGEN BREATHING APPARATUS

Complete Protection in Unbreathable Air

The new M.S.A. light-weight half-hour oxygen breathing apparatus developed by the Research Laboratories of the Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa., is designed for rescue work, general fire-fighting use, chemical plants, gas or underground water mains, sewers, tunnels, and conduits. In use, it provides at least a half-hour of complete respiratory protection for men entering dangerous concentrations of gas, or oxygen-deficient atmospheres.

This new light-weight unit is far more comfortable to wear than earlier breathing apparatus. The weight has been reduced to 13¼ pounds and the unit is smaller and more compact, with better distribution of weight. Breathing resistance has been materially reduced, both to inhalation and exhalation, and the mouthpiece is lighter, and fits more snugly.

This apparatus is self-contained, operates independently of the outside air, and automatically supplies the exact quantity of oxygen required by the wearer, whether under exertion or at rest, without the necessity of manipulation. It consists essentially of a light-weight cylinder containing a supply of oxygen under high pressure, a series of valves controlling the pressure and circulation of oxygen, a rubber breathing bag which functions as a reservoir, under low pressure, from which oxygen is inhaled by the wearer, and a refillable regenerator containing a special chemical known as Cardoxide to purify the exhaled air, which is re-breathed.

Austin-Western Agency In Illinois and Indiana

The Austin-Western Road Machinery Co., Aurora, Ill., has announced the appointment of S. F. Beatty, Jr., as Sales Manager for the Illinois and Indiana territories. It has also announced that the Austin-Western Agency, Inc., 111 West Washington Street, Chicago, Ill., will handle sales of Austin-Western equipment in Lake, Cook, DuPage, Will and Kankakee Counties in Illinois, and Lake and Porter Counties in Indiana. The officers of this Agency are: President, J. Frank Peaslee; Vice-President, Edwin J. McGinty; and Treasurer, Herbert B. Cadmus. These three officers have been connected with the Austin-Western Road Machinery Co. for from eight to eleven years.

Charles A. Rogers Killed in Auto Accident

Charles A. Rogers, President, Rogers Bros. Corporation, and pioneer manufacturer of trailers for handling heavy construction equipment, was killed in an automobile accident on December 12 on the Roosevelt Highway when returning from a deer-hunting trip.

In 1905 Mr. Rogers founded the Rogers Bros. Company, which included two brothers, Louis, Vice-President of the present Rogers Bros. Corporation, and Hugh Rogers, Secretary of the firm. The company engaged in the construction and erection of steel bridges.

In 1907 he moved with his family to Albion, Pa., where they have resided since that time, manufacturing light auto trailers, ultimately entering the present business of manufacturing heavy-duty trailers.

A New Positive Water-Meter Tester

The large majority of water works, particularly the smaller ones, seldom have accurate or positive means of testing their meters. Often when a meter is repaired, the man making the repairs simply blows through the meter to see if it runs, when it is again put into service with the assumption that it is accurate. Sometimes meters are hooked up in series with a new meter and water is run through to see if the readings check. This is better than the lung-power method but still is far from accurate or dependable, in that the test meter may be in error by 2 per cent or even more. Several states have regulations governing water utilities, both municipal and private, and require a positive method of testing water meters in every meter shop.

The Ford portable calibrated testing tank furnishes a positive test. It has no moving parts, no weights, beams or pivots to get out of order, as with scales. The shape of the tank neck puts the gage glass where it is well protected from all sides and yet is easily visible. Being in the center of the neck area, the water level in the glass remains constant when the tank is tipped out of vertical. Thus the tank is accurate even when it is not set plumb, and it is not necessary to prepare a level place for the tank in the meter shop, in a basement, or wherever it may be used.

The lower part of the tank and the guard handle are made of heavily galvanized steel, the neck of cast aluminum. The gage and instruction plate are brass. The red stripe on the back of the tube is magnified by the water so that the water level is visible at a glance and chances for error are reduced to a minimum. The easily-read water level shows instantly the meter accuracy in per cent fast or slow. No computations are necessary with this new product of the Ford Meter Box Co., Wabash, Ind.

To make a test with this tank, the meter is started with the test hand exactly on a mark and with the tank empty, and with the pipe or hose from the meter to the tank as full or as empty as it will be at the end of the test. Water is run through the meter into the tank until the meter shows exactly one revolution of the test hand, 10 gallons, then the water is shut off. If water in the tank stands at the 10-gallon point, the meter is correct. If water stands below this point, the meter has registered more water than has passed, and has over-registered or is fast, by the per cent shown. If water stands above the 10-gallon point, the meter has registered less water than has passed and it has under-registered, or is slow by the per cent shown. These testers are also made in one-cubic-foot sizes.

THE NEW FORD PORTABLE CALIBRATED METER-TESTING TANK

Everything you need in street lighting

The SUPERLITE LUMINAIRE

The ESTROLITE LUMINAIRE

Select **L-M** Street Lighting Equipment for your next installation. Choose from a complete line of Standards, Luminaires, Brackets, Accessories, well designed, well made, dependable.

Consult the L-M Catalog and call in the L-M Illuminating Engineer.

BETTER LIGHT BETTER SIGHT WITH L-M EQUIPMENT!

LINE MATERIAL CO

SOUTH MILWAUKEE, WISCONSIN, U. S. A.

Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Belmont Installs Mercury Mazda Luminaries

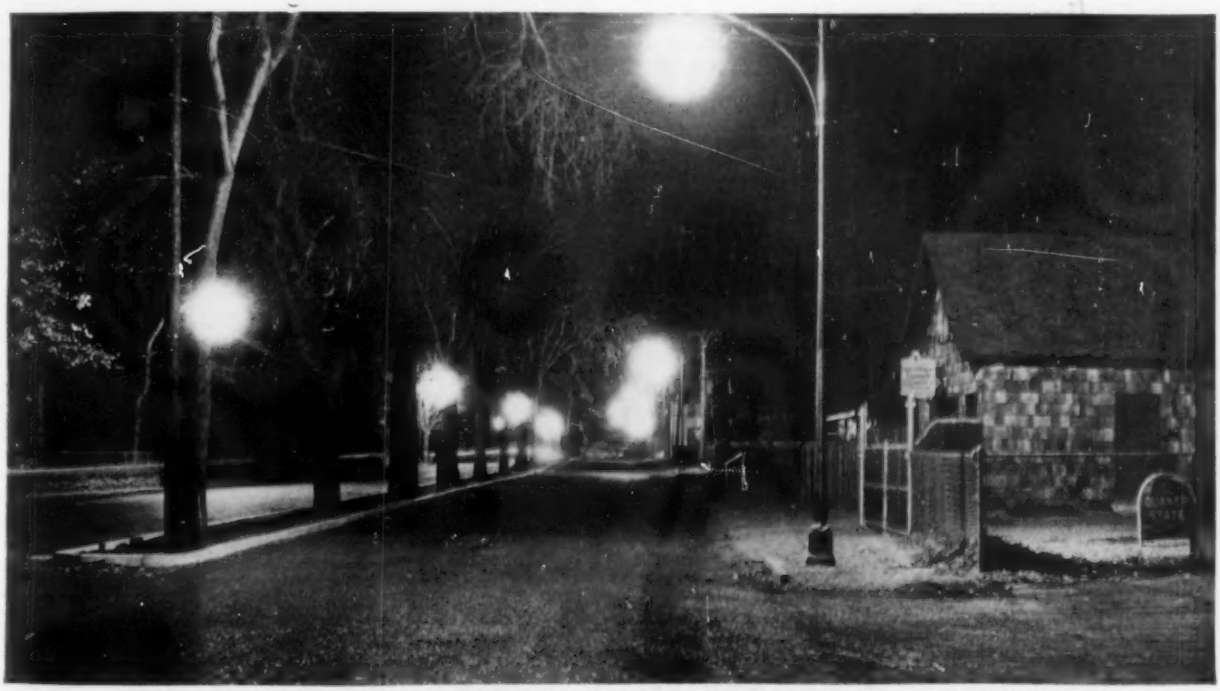
By **E. P. TAYLOR**
Manager, Municipal Light Department, Belmont, Mass.

WORKERS and late theater goers from Boston returning to their homes in Waltham, Belmont, and Arlington, make good time on Concord Avenue's three miles of new bituminous macadam from Fresh Pond to Common this heavily shaded avenue are many Street in Belmont. Mass. Bordering on beautiful homes and playgrounds. Thus Concord Avenue is a residential thoroughfare 70 feet wide, consisting of two three-lane highways separated by a strip of trees.

The average day traffic count is 268 vehicles per hour in each direction. The 24-hour count has increased from 4,200 vehicles in 1930 to 5,300 vehicles in 1935, which clearly shows the need for the ability to see quickly and to protect the children playing on the street at night, and other pedestrians.

Two factors make the lighting problem on Concord Avenue very difficult: first, the pavement absorbs rather than deflects the light; second, the line of trees down the center reservation and the two lines of trees bordering the avenue on either side. The old type of lighting was practically masked by the trees and was consequently inefficient.

In arriving at a solution of this rather difficult lighting problem, the writer made a preliminary investigation of the new sodium and mercury vapor lamps, and concluded that the new high-intensity mercury lamp in combination with the mazda lamp might be just the thing. Several of the General Electric Form 32 mercury mazda luminaires were purchased and installed at an important intersection for purposes of study, and were found eminently satisfactory. As a result, 45 of these luminaires were installed on Union Metal steel standards at 22 feet height, with an average spacing



"THE TOWNSPEOPLE HAVE SO ENTHUSIASTICALLY RECEIVED THIS NEW LIGHTING THAT EXTENSIONS ARE PLANNED ON ADJOINING COMMON STREET"

Concord Avenue, town of Belmont, Mass., illuminated by mercury mazda luminaires with 400-watt mercury and 200-watt mazda; spacing 160 feet, mounting height 22 feet

COME TO RADIO HEADQUARTERS FOR RADIO EQUIPMENT

Reliable as the Earth itself

RCA Terra-Wave Police Radio

Chief C. A. Peterson, Department of Police, Englewood, N.J., at his RCA Terra-Wave Police Radio Transmitter.

How the new Mobile Transmitter fits easily in standard rear trunk. May also be installed inside car, if desired. Enables police car to communicate instantly with headquarters.

This special generator is a feature of the ET-5022 Mobile Transmitter. It avoids heavy drains upon the car's battery, assures perfect operation at all times.

THE name "Terra-Wave" was chosen for the RCA Police Radio System for two reasons: First, the system uses ultra-short radio waves, which keep close to the earth, and are practically free from static, fading, interference and other troubles. Second, because of these characteristics of the waves, the system is as reliable as the earth itself. You can always rely upon it to reach your cars. And if it is a two-way system, you can always get an instant reply back, if desired. Another and vital assurance of reliability is the fact that the apparatus is invented, designed and built by RCA, the greatest name in radio, the one organization that makes everything in radio, from the microphones in broadcasting studios to the speakers in the American home. Every item in the RCA Terra-Wave Police Radio System is an RCA creation. It always pays to go to headquarters for your equipment, and RCA is Radio Headquarters.

RCA

RCA TERRA-WAVE POLICE RADIO

A complete system, invented, designed and built by the RCA Manufacturing Co., Inc., Camden, New Jersey, an RCA subsidiary

LATOX CABLES
for
FIRE and POLICE SIGNAL SYSTEMS

A thin layer of LATOX, a new type of rubber insulation made directly from rubber latex, is put on the conductors to obtain the light weight and small diameter of paper insulated cables. It is practically pure vulcanized rubber with the dielectric strength, long life and other qualities which make rubber the best insulation yet devised for wires and cables.

Descriptive booklet upon request "LATOX Lead Covered Cables"

SIMPLEX WIRE & CABLE CO.
Sidney St., Cambridge A
BOSTON, MASS.

Where
WISE SPENDING
and
GOOD LIGHTING
Meet . . . You will find a

HOLOPHANE REFRACTOR

—it shapes all the light to the street.

Engineers Are Invited to Investigate!
HOLOPHANE COMPANY, INC.
342 Madison Ave., New York. Works, Newark, Ohio

of 160 feet staggered. A 6-foot upturned bracket brings the luminaire out over the road and allows the light to "punch through" the overhanging tree branches. In other words, the longer bracket allows the light to be brought out to the ends of the limbs where the screening effect is least.

MERCURY MAZDA UNIT AT BELMONT, MASS.

Union Metal Monotube pole with cast-iron base for transformer; 22 feet to light center; bracket 6 feet

The choice of the combination mercury and mazda luminaires was made for the following main reasons:

1. Higher lumen-per-watt than from any other suitable street-lighting luminaire available.

2. Lowered maintenance and lamp-renewal cost, for the two lamps in each unit provide a flexible arrangement whereby the mercury lamp can be turned out at midnight and the mazda lamp can carry on with sufficient illumination for the remainder of the night. This made possible only one renewal of the mercury lamp per year, since it is guaranteed for 2,000 hours of life. It also will save the town money by cutting the costs for energy two-thirds over that which we would have to pay if both lights were burned all night long.

3. The 200-watt mazda (a) provides some color correction for the mercury light, which is deficient in the red portion of the spectrum, (b) enables the mercury lamp to come up to intensity more quickly in cold weather, and (c) serves as a standby in case of failure of the mercury lamp.

4. Because of the elongated light source, the rippled alabaster globe is "filled with light," which improves its appearance and reduces the many shadows cast by the trees.

The installation of these new mercury lights is a part of the planned program of modernization of the Belmont Municipal Lighting Department.

A unique feature of the installation is the shading of the luminaires of the house side. The rectangular globe used is silvered on the outside of the flat portion located nearest the sidewalk. This redirects the light back onto the street, thus increasing the utilization efficiency. Residents on Concord Avenue are gratified that they do not have light shining in their upstairs windows.

A very efficient mercury lamp is now available for these luminaires having a output of 16,000 lumens for 400 watts of consumption. The total combined lumen output of the luminaire is approximately 19,400, which averages 32 lumens per watt. The luminaire (mercury lamp) is connected to a 230-volt, 60-cycle multiple-circuit through a reactor located in the base of each pole. The over-all power factor is approximately 95 per cent. The electrical control of the several circuits presents some novel features worked out by J. H. Wells, engineer of our plant.

The townspeople have so enthusiastically received this new lighting that extensions are planned on adjoining Common Street. Our program is based on the principle of greatest needs supplied first. The highest traffic count in the town of Belmont was on Concord Avenue, with corresponding accident hazard.

The town of Belmont is proud of the fact that it fostered this unique installation, which represents the largest application of mercury lighting combined with incandescent lamps so far in this country.

Considerable interest has been shown in this installation by various engineers from all over the country, who have expressed their desire to investigate this from a standpoint of applying it to their requirements.

Asks More Light on Jersey Roads

THE League of N. J. Municipalities in resolving that the Highway Department light state highways where they traverse municipalities, gave these reasons:

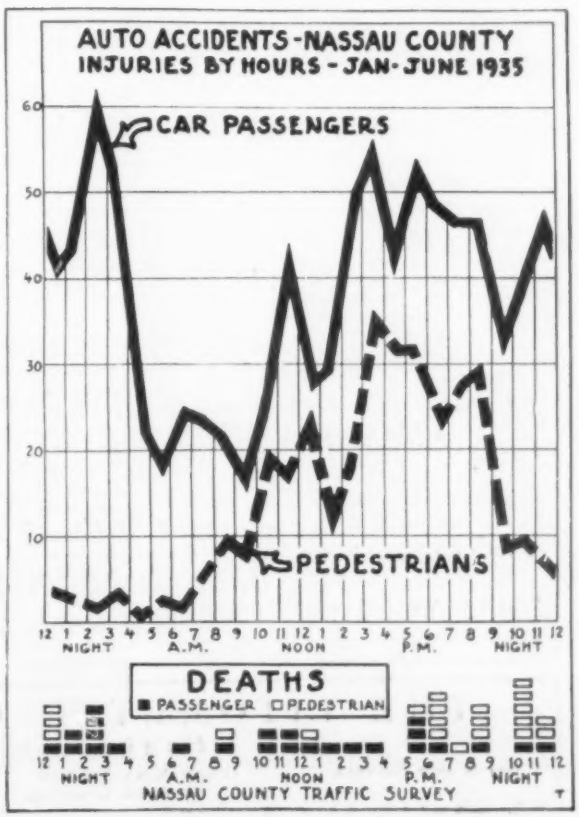
1. There were 411 deaths and 9,000 injuiries on these highways in 1934.
2. 55 per cent of the deaths occur at night when traffic volume is 20 per cent of the total.
3. Lighting is the cheapest remedy.
4. The Highway Department is vested with the power and duties of building and maintaining state highways and shall make certain improvements, among which highway illumination is specifically mentioned.
5. It was the intent of the Legislature that the Department assume all responsibility for providing lighting on any and all state highways.
6. While the Department has lighted viaducts and traffic circles, it expects municipal governments to light portions of state highways traversing municipalities at normal grade.
7. Municipalities cannot now pay this expense, and consequently the resolution stated above.

Better Light Would Reduce Accidents

DATA from traffic courts made by a TERA survey at important intersections in all parts of Nassau County, N. Y., disclosed that the accident percentage exceeded the traffic volume percentages from 7 P.M. to 7 A.M., with the accident percentage nearly six times the volume percentage from 3 to 4 A.M.

This condition exists not only generally throughout the county, but in thickly populated areas as well. The accompanying chart shows the numbers of injuries taking place at the various hours during the first half of 1935.

Note how the automobile swells night traffic. While pedestrians are sleeping, car pasenger deaths reach the peak.



The American City Professional Service Directory

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Waterweeds Removed
easily and effectively from any lake, pond, reservoir, river, etc., for Water Supply, Parks, etc. Write for particulars
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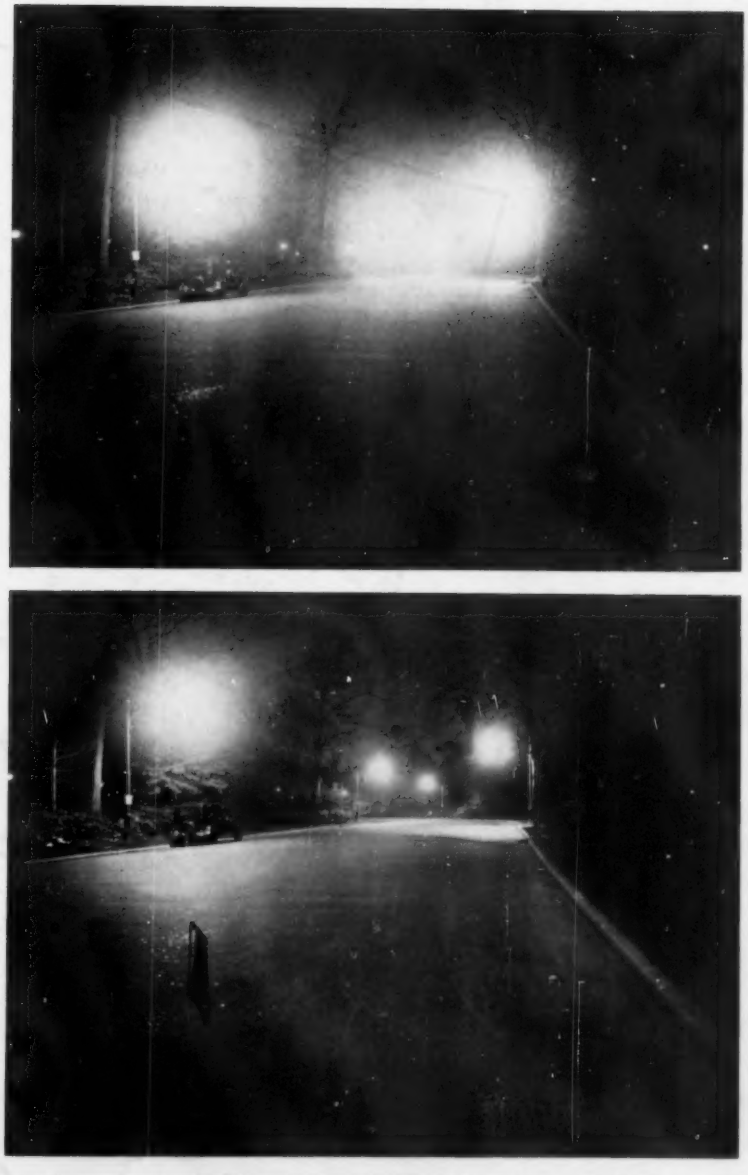

The lower picture shows the improved street illumination produced by the new luminaires now being installed throughout New York City, in contrast to the glare and waste of light resulting from the former type of luminaire as shown in the upper picture